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THE

PHILADELPHIA
MEDICAL AND PHYSICAL
JOURNAL.

COLLECTED AND ARRANGED

BY BENJAMIN SMITH BARTON, M. D.,

PROFESSOR OF MATERIA MEDICA, NATURAL HISTORY, AND BOTANY,
IN THE UNIVERSITY OF PENNSYLVANIA.

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NOTE.

The following interesting communication to the Editor, from Professor Hall, of the State of Vermont, came too late to be inserted in a more proper place.

Dear Sir,

I HAVE lately received a letter from Sir Charles Blagden, formerly secretary of the Royal Society of London, in which he gives an account of an important chemical discovery, which Mr. Davy, a lecturer in the Royal Institution, has recently made. This indefatigable professor has, by means of Volta's galvanic pile, discovered the bases of potash and soda. "He has obtained them, separately," says Sir Charles, "and they look like metals, both in their solid and fluid form. They also combine with metals, preserving their metallic appearance. With oxygen they recompose potash and soda."

The French chemists, with eagerness, caught this intelligence, repeated the necessary experiments, and found a result similar to that of Mr. Davy. Messrs. Thinard and Guy-Lussac, two of the most persevering and distinguished chemists of the age, have continued to torture these substances in a variety of ways, and have, at length, learned, that they can be decomposed by a chemical process, without the aid of galvanism. The decomposition is effected by combining these alkalies with carbon and iron, by means of a very high temperature. From a combination of carbon and potash, or soda, results a black mass, which suddenly inflames when placed in contact with the air, or plunged in water. The metal is obtained perfectly pure, when iron is employed instead of carbon.

Messrs. Thinard and Guy-Lussac have already submitted the metal to a number of interesting trials, the success of which will soon be made public. Much is expected from their labours; and, indeed, it is generally believed, here, that this discovery will gradually lead to others of equal, and, perhaps, superior importance. As the metals of potash and soda can now be easily procured, in abundance, the relations, which they sustain to other substances, will undoubtedly be made the subject of chemical investigation.

It is Mr. Davy's opinion, " that all the different earths consist of bases of a peculiar metallic nature, having a very strong affinity for oxygen, by uniting with which, they form those earths respectively." He believes that he has already made visible, by the assistance of galvanism, the basis of the one called barytes.

I make this communication, Sir, in hope that the subject may be sufficiently interesting to engage you, and other philosophers on your side the Atlantic, to unite your labours with those of the English and French in this new field of physical inquiry.

I am, &c.,

FREDERICK HALL.

Paris, March 24th, 1808.

THE

PHILADELPHIA

MEDICAL AND PHYSICAL JOURNAL,

SECTION FIRST.

THE

PHILADELPHIA

MEDICAL AND PHYSICAL JOURNAL.

I. *An Essay on the Influence of Air upon Animal Bodies. By a Physician of Massachusetts. Communicated to the* EDITOR, *by* GEORGE SHATTUCK, *M. D., of Boston.*

Causa latet, vis est notissima.

Question.—HOW does air act upon, or influence, animal bodies, in originating and continuing respiration, maintaining organic motion, and preserving the exercise of the vital functions?

What causes the first inspiration is the first object of inquiry. As this is intimately connected with the cause of the motion and life of animals, it will be proper we should establish some general data on this subject.

All living bodies, besides obeying the general laws of attraction, repulsion, and chemical affinity, are supposed to be endowed with some peculiar principle, by which they are further connected with the rest of nature. To this principle are to be referred sensation and thought, which, as agents merely physical, are capable of influencing the human body. To this principle is to be referred every property of animals, which distinguishes them from inanimate matter. With respect to the brain and nervous system, we all know, that there is nothing resembling them in inanimate matter; but it will not be found, upon experiment, that the property of muscular fibres, on which the motion of animals depends, can be placed in a supposed vital principle, unless we adopt the idea, that life has its degrees, and that the principle is the same, whether in the mutilated parts or the entire animal; and to this principle I must confess myself inclined: for, though sensibility is essential to consciousness, irritability is equally so, and, if the latter does not exist, the former is useless. In our remarks we shall therefore consider man purely as a physical machine, operated upon by external agents, the force of whose action depends upon the *excitability* of the subject.

On whatever principle life depends, there could be no life without motion: we mean motion of the corpuscles of bodies, as well as muscular contraction and elongation. This motion of the corpuscles of bodies is preserved by the intervention of caloric, which Lavoisier and all the modern chemists regard as the universal cause of expansion. Hence the temperature of a body will depend upon the spaces which exist between its corpuscles; and as the spaces will be in proportion to the greater or less expansibility, so will be the quantities of caloric interposed, over and above what is combined to constitute their different properties or capacity.

Muscular motion, that is, the contraction and subsequent elongation of muscular fibres, we are told, is a totally different power; which doctrine is founded on the following fact, that the force which is exhibited in muscular action is greater than the power which is applied to produce it. This, however, appears to us to prove no more than this, viz., that the source of this extraordinary re-action in the living muscular fibre cannot be traced, either in the agent which excites it, nor can it be said to depend upon volition; for the most violent and extraordinary contractions are involuntary, as in cases of somnambulism, hysteria, insanity, &c. But it does not at all destroy the position, that a regular and equal motion of the component parts of the animal body, and a certain degree of temperature, must exist, or this excitement cannot be produced. "Omne quod vivit, sive animal, sive terra editum, id vivit propter inclusum in eo calorem; quod autem alitur et crescit, *motu quodam* utitur certo et equabili, qui quamdiu remanet in *nobis*, tamdiu et vita remanet, refrigerato autem et extincto calore, occidimus ipsi, et extinguimur*."

Muscular action, therefore, though arising from an independent power, is subject to some known laws. The disposition of the living fibre to contract, Dr. Brown very appropriately terms excitability, and, to the foreign agents concerned in its continuance and renovation, he applies the general term stimulus. The influence of any stimulus on the excitability of the subject may comprehend all those physical and chemical actions on which their various phenomena depend, and this even without the intervention of muscular irritability or sensation.

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* Cicero, Nat. Deorum.

In proof of this doctrine I may here mention the sea-anemonies, a marine production, which is destitute of muscular fibres and nerves, and exceedingly gelatinous, yet, at the same time, so irritable, that even light affects them, though to all appearance destitute of eyes*.

The inference which will necessarily result is, that light acts on the iris, in certain animals, without the intervention of muscular irritability†, and consequently parts may contract and elongate, that is, shorten and expand, though destitute of muscular irritability.

The infant, prior to birth, derives its support and nourishment from its connection with the mother. Indeed, all the living powers of the fœtus depend on the healthy actions of the mother. The irritability and sensibility of the parent is reciprocated by its offspring, and such is the sympathy and power of nature, that the imagination of the mother is often impressed in indelible marks on the fruits of her body.

If the organization of the fœtus is complete, if the body possesses the usual temperature of the nascent state, viz., about 97° of Fahrenheit, and is now emerged into the bosom of the atmosphere, what are the effects produced by this sudden change in the mode of existence, in passing from the matrix into the air? Inspiration is ordinarily and chiefly performed by the action of the intercostal muscles and diaphragm; the ribs and sternum are elevated and pushed forwards by the contraction of the intercostal muscles, which, joined to the contraction of the diaphragm, dilates the thorax in every direction.

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* Haller, vol. 5. p. 428.

† Winslow, Traité, des Nerfs, 26.

Thus the lungs, which come in contact with the ribs and diaphragm, and passively obey their motions, remain quiescent, whilst a cavity is produced, into which the air is forced by its undequaque pressure to preserve its equilibrium.

This action is involuntary. The infant does not inspire from an instinctive principle, or any supposed appetite. The air alone, by its stimulus, like light on the *iris*, excites the living powers of the proper organ, by which alone the life of the animal can now be maintained, viz., the muscles which enlarge the chest, and on whose immediate action depends the continuance of life.

Hence, in cases of still-born infants, stimuli far more powerful than is the air, are requisite to excite this organic action. An ingenious physician related to me a case of restoration of a still-born infant by moderate and continued flagellation, when the ordinary stimuli had been in vain attempted, which induced him to remark to the bye-standers, who thought it a cruel operation, that he presumed it was the first time they had ever known of an infant's being whipped into life, though the contrary might have occurred to their observation.

This case shows, that it is not material to what part of the body the stimulus is applied, provided it be sufficient to rouse the dormant excitability. The uniform effect of any superior stimulus, whether through the medium of the passions, or by the direct application of any agent capable of exciting the natural motions or actions of the system, is an involuntary contraction. Hence the deep full inspiration accompanying restoration from syncope, and that succeeding surprise, or the application of cold water to the system, or the wounding even of the most extreme part of the body by the sudden application of any irritating substance, particularly exemplified in the prick of a pin. Reaumur relates a case of a subject restored to respiration similar to the revival of the hybernating animals by the mere application of caloric alone.

By these and similar cases it is rendered evident, that the form of action produced by any stimulus depends upon the excitability of the animal at the time of its application. Hence the extraordinary influence of certain stimuli in states of accumulated irritability, as of light and water in cases of hydrophobia; and, in instances, even the most delicate aroma becomes as destructive as the deadly exhalations from the Grotto del Cani.

Now the excitability of the nascent state is at its maximum, as is proved by the greater irritability of infants compared with that of adults, and the less quantity of stimulus necessary to bring all their powers into action.

Dr. Waterhouse, in his Discourse delivered before the Humane Society*, observes, that "after parturition, the child opens its mouth to cry, and down rushes the air." As the Doctor cannot here mean, that the nascent infant had as yet acquired any knowledge of the evils which induce it to gape for *vital air*, the opening of the mouth is an involuntary action, excited by the immediate stimulus of the air on the irritable and exposed surface of the child, for, as the midwife well knows, crying is often excited the instant the chest is free, and the same effect would follow, were the infant directly to be plunged into water either above or below its temperature†.

We have here assumed it as a given principle, that it is the nature of the living fibre to contract on the application of any foreign stimulus, and in this we are supported by the experiments of Fordyce, and by those of many others.

That this, therefore, is an original source of mechanical power will not be denied, but that, as has by many writers been contended, it is an independent source of power will not appear so evident, for, as we before observed, motion and a certain temperature must exist or be produced, before those great characteristics of life, sensibility and irritability, will be discovered.

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* Page 13.

† The learned gentleman seems to have forgotten, that children are born with *noses*, which furnish open avenues for the passage of the air to the lungs.

Many experiments might here be adduced, but I shall content myself with one related by the ingenious Dr. Gardner.

"Some years ago, I cut out the heart and part of the large vessels of a turtle, with a view to examine the structure of the parts, and the circulation of the blood in this animal. Having wiped off the blood and other moisture, the heart was wrapped up in a handkerchief; but engagements in the way of my profession obliged me to postpone the gratification of my curiosity until absent six or seven hours after it was cut out. When I examined it, there appeared not the least signs of life, it being much shriveled and dried. But on putting it into water, nearly milk-warm, it plumped up, and some parts of it acquired a tremulous motion. Laying it on the table, and pricking it with a large needle, it palpitated several times. The palpitation renewed as often as the needle was pushed into its substance, until it became cold, when it seemed insensible to every stimulus. But, after warming it again in water, it recovered its irritability, and repeated its palpitations on the application of the needle. Though no motion could be excited in it when cold, yet it moved several times after being macerated in warm water."

The physical power, therefore, of the living fibre, though superior in its force of action to the impulse which excites it, is dependent on the same laws of motion and temperature, by which every particle of matter in nature is actuated. As animal heat and irritability must co-exist, and as, agreeable to the modern doctrine, all animal heat is derived from the decomposition of oxygen gas, why is it that irritability is greatest at birth, and gradually lessens as life advances? The dark colour of the placenta will not justify the belief, that much oxygen is received by that organ. Drs. Girtanner and Fothergill seem both inclined to the opinion, that oxygen is the cause of irritability. Great has been the zeal with which physiologists have applied the chemical doctrines to the solution of a favourite theory. I might remark, that the lower tribes of animals (as the polypus, for example), in which respiration is not an immediately vital function, are yet endowed with far superior degrees of irritability than the more perfect animals. Motion, sensation, irritability, heat, and life itself all exist when inspiration begins. It imparts, therefore, no new attribute; it simply commences the motions of an as yet dormant organ, whose action is now essential to the preservation of all the above-mentioned properties. It is the pendulum of the machine, whose equal and regular actions harmonize the motions of the whole. Its motion stopped, man becomes a lifeless carcase. Again renewed, again he wakes to intelligence. The power of contraction, by means of which the inspiratory muscles are thrown into action, the ribs and sternum elevated, and the cavity of the thorax enlarged in every direction, is doubtless superior in the force of its action to the impulse which is the moving agent. In the structure of the thorax, nature has consulted facility of motion. The mere relaxation of the muscles contracted in inspiration, aided by the gradual return of the cartilages of the ribs, mediastinum, and lungs from their inherent elasticity, is sufficient ordinarily to expel the air, for, by the experiments of Dr. Menzies, 179 cubic inches of air remain after a common expiration.

Respiration is an involuntary action, which even the adult cannot long command. Nature has made the expiratory muscles, destined to antagonize with the inspiratory, superior in strength to the inspiratory.

The air, then, is the only medium into which the infant is introduced, it is the only stimulus to which it is subjected, it is the only source by which its motions for the maintenance of heat and life can now be preserved.

From these observations it will follow, that air is to the more perfect animals no more in its effects, than is caloric to various animals and vegetables, which the return of heat is sufficient to restore to the exercise of their living powers.

Without enquiring into the cause of life, we will next consider why air is so essentially requisite to the preservation of animal temperature. The organic action of plants decomposes water in the same manner in which respiration decomposes air. Both are endowed with the principle of life, both are mutually dependent on each other, mutually aiding and supporting one another by their reciprocal actions; carbon and hydrogen, two of the principles of vegetables, are continually evolved by animal action to maintain the growth of vegetables, while oxygen is perpetually passing off from vegetables to supply the atmosphere with an essential principle to the support of animals. The great and striking analogy between the animal and vegetable kingdoms consists in the power of evolving caloric, or, in other words, resisting, while alive, the temperature of the surrounding medium. It has been ascertained by some late experiments in France, that the plant spadix will raise the thermometer 15¾°, while the parts concerned in fructification are developing. Man, though classed among the hot-blooded animals, is among the lowest of the class; the thermometer usually pointing, when placed on the central parts of the body, at 97° Fahrenheit. The atmosphere combines with, and becomes the recipient of, the caloric, carbon, and hydrogen, which are evolved from the blood during its circulation through the lungs, the retention of which principles would become the fruitful source of disease.

The lungs may justly be regarded as the mediate source or cause of those superior degrees of heat observable in all animals possessing this organ, not because, as many modern philosophers believe, all animal heat is derived from the decomposition of the oxygenous portion of the air, but because respiration is essential to the exercise of every other function concerned in maintaining those actions which generate animal heat. Great diminution of temperature in animals, like frost in vegetables, may cause a suspension in the exercise of their functions, even to an extended period.

The ground on which Black, Crawford, Lavoisier, and others, have constructed their theories concerning the generation of animal heat by the pulmonary absorption of oxygen gas, it will not be necessary to pass in review, as it has already been a subject of so general discussion, and as we have already asserted, that animal heat can arise only from animal action.

The oxygen is the only portion of the atmosphere which undergoes any change in its chemical properties in respiration. The experiments of Lavoisier prove, that four-fifths of the oxygen which disappears in respiration are consumed in the formation of carbonic acid gas, a combination taking place between the oxygen of the atmosphere and the carbon of the blood. The remaining one-fifth is either, he supposes, absorbed by the blood, or is expended in the formation of water by combining with the hydrogen of the blood; to which latter opinion we confess ourselves inclined, for the alteration of the colour of the arterial blood, which has been regarded by Crawford and his followers as a direct proof of the absorption of oxygen, may easily be accounted for by an immediate alteration of the constituents of the blood upon its entrance into the lungs by the evolution of its carbon and hydrogen; for the colour of a body always varies with the alterations of its chemical properties. To this opinion, Seguin, in his Memoirs on Caloric, in the Annals of Chemistry, seems inclined.

Having seen in what manner all the oxygen is disposed of, let us now examine the modus operandi, by which carbon, hydrogen, and caloric are evolved, the various combinations produced, and the manner in which the functions of this organ of vitality are preserved entire. Venous blood returns from all parts of the system charged with carbonated hydrogen. Carbonated hydrogen has a greater affinity for oxygen gas than for the blood. A double decomposition takes place, and water and carbonic acid are formed.

Particles of water, to be converted into vapour, are said to absorb 405° of caloric, carbon probably much more. Now it is proved, by the experiment with the Guinea-pig related by Crawford, in his *Treatise on Animal Heat*, that caloric, instead of being absorbed by the lungs, is carried off in the form of carbonic acid gas, and of water reduced to the state of vapour.

Carbon and hydrogen do not exist, in our opinion, as gasses in the vessels, but as constituents of the blood, and hence the necessity of the superior action and temperature of the lungs, that these may be separated and thrown off from the rest of the blood, upon its arrival at, and circulation in, the minute pulmonary vessels. The loose caloric evolved by the combinations of oxygen with carbon to form carbonic acid gas, and with hydrogen to form water, is communicated to the water for its conversion into vapour, and to those portions of the air which are respired unchanged, which are always increased in temperature by having passed into the lungs. According to the experiments of Dr. Hunter, the temperature of the lungs is but about 3° above that of the external organs. The increased temperature of the internal parts beyond that of the external is destined to perfect the secretions in the new decompositions and recombinations of the fluids, observable in glandular secretion, suppuration, digestion, &c. We have before remarked, that respiration imparted no new principle, but that by its stimulus the air preserved that vibratory motion of the component parts of the animal body, essential to the contraction and subsequent elongation of its muscular fibres, and to the repeated action of its various organs. Dr. Fothergill remarks, that vitality consists in action and re-action between the vital organs and their respective stimuli.

"Our fundamental power of animation is the capacity of the living body to preserve the same degree of heat, in various degrees of temperature of the same medium, and in media of different density and pressure." Is it then philosophical to consider the fœtus, after disconnection from the placenta, as no longer possessing this vital attribute, but as totally dependant therefor on the oxygenous portion of the atmosphere? If this position were true, simple inflation with oxygenous gas would, in most cases of suspended animation from submersion, &c., be amply sufficient to restore the vital functions. The experiments of both Goodwin and Coleman on submersed animals proves that the caloric and temperature of the body must first be gradually restored, before respiration can be established. Animal heat, therefore, is restorable without the aid of respiration, and is the condition essentially requisite to the return of respiration. Does it not irresistibly follow, that the loss of heat in those vital organs, the heart and lungs, must necessarily be accompanied by a loss of their motion, which cannot be restored, till, by the restoration of their temperature, they again become susceptible to the influence of their ordinary stimuli. The air, by its stimulus upon the external parts of the system, propels the blood from the surface to the centre, while its stimulus upon the lungs, which is an internal part, propels it to the heart, which again drives it forward through the whole sanguiferous system. From the lungs, as from the skin, those portions of the blood, which, if retained, would become deleterious, are, by the actions of the vessels, thrown off in an aerial form, whereby the temperature of the body is uniformly preserved.

Enough we think has been said to prove, that heat is produced in every part of the living body, and that the lungs are not, therefore, its only source. Herein we cannot but admire the wisdom of nature, which, by one and the same medium, continues vital motion, maintains temperature, promotes circulation, and thus preserves the exercise of the vital functions.

II. *On the Opening of Buboes by Caustic. In a Letter to the* EDITOR, *from Dr.* CUTBUSH.

SIR,

IN the course of your practice, many obstinate cases of Buboes have, doubtless, come under your notice, which could not be dispersed by the general means in use among surgeons.

Such cases have frequently occurred to me since I have been in the navy of the United-States; whether the difficulty of discussing them be owing to the inattention of sailors, or to the inefficacy of the usual remedies, I cannot *positively* determine, though I am inclined to believe the latter; having seen many cases, during my residence at the Pennsylvania Hospital, which suppurated, after the most assiduous application of discutient remedies.

Having been frequently foiled in my endeavours to disperse them, I determined on a new plan of treatment, which has been attended with considerable success, and which I beg leave to communicate.

I made a small *issue* in the centre of the tumour, by twirling a piece of Lapis Septicus (cut to a fine point) on the most prominent part, which was afterwards covered with dry lint; the next day it was dressed with Ung. Misc.; the eschar generally separated in two or three days, leaving an aperture, about the size of a pea or small bean, which was daily filled with a piece of wax, sprinkled with the nitrate of mercury, and the tumour covered by a plaster of Empl. or Ung. Merc.; if the eschar did not separate soon, a poultice of Farin. Semen Lini. was applied.

The issue inflamed slightly, and discharged, daily, a *small quantity* of pus; in a few days the swelling was gradually dispersed, and the issue healed, without trouble, by omitting the wax and nitrate of mercury.

In making the issue, I prefer *caustic* to the lancet: the former excites *immediately* that degree of irritation, which is afterwards kept up by the precipitate, on which, I conceive, the cure depends. It produces much less pain, and is less inconvenient than a *blister;* the patient is not obliged to confine himself to his bed; and, so far as my experience warrants the assertion, is far preferable to the usual mode of treating Buboes, which frequently suppurate, and are tedious to heal, even after the most scrupulous attention to the early application of those remedies in common use, which not only exhaust the patience of the patient, but too frequently injure the reputation of the surgeon.

During the last five years, I have pursued this plan of treatment in forty-one cases, with success; in none of these did the issue penetrate deeper than the adipose membrane; but, in two others, the issue had not the desired effect, in consequence of a *suppuration* having *already* commenced in the tumour: it was therefore necessary to make an incision into each of them, which degenerated into very troublesome ulcers.

It is, I presume, unnecessary to add, that the usual mercurial plan of treating this disease was also pursued in the above cases.

I am, &c.,

E. CUTBUSH.

July 26, 1807.

III. *On the Prevention and Cure of certain Diseases of the Silk-Worm.*

SIR,

CONSIDERING that every information, which has a tendency to enlarge our stock of knowledge on subjects connected with manufactures, ought, at the present crisis, to be generally diffused; and observing the attention of our countrymen called in the public prints to the culture of silk; I have translated the following extract from an Italian Memoir, on the use of the oxygenated muriatic acid gas, for the purification of rooms set apart for Silk-Worms. This gas has also been found a useful remedy for their diseases. These remarks may therefore become useful to the American cultivators of this branch of rural economy; I therefore beg leave to communicate them to the public through your valuable periodical work.

I have the honour, &c.,

July 29th, 1807. E. CUTBUSH.

B. S. Barton, M. D.

Sull' uso dei suffumigi d'acido muriatico ossigenato per disinfettare l'aria delle stanze dove si allevano i bachi di seta, del Sig. Paroletti, dell' Academia di Turino, &c.

EXTRACT.

The memoir which bears this title was communicated by the author to the Agricultural Society of the

Department of Siena; it was inserted entire in the seventh number of the Biblioteca Italiana; and also noticed in the Italian Journal, Sunday, October 30th, 1803; a very similar account may be found in the Bullettino della Societa Felomatica of the month *Nivose:* the importance of its object obliges us to present an account of it.

The author, born in a country where Silk-Worms form one of the principal branches of the produce of the husbandman, and who has applied himself particularly to this part of rural economy, observes, that there are, in some years, unforeseen events, which destroy, in a few days, the hopes of the cultivator. Experience having convinced him, that frequently the vitiated state of the air in the rooms, in which Silk-Worms are reared, was the most common cause of their diseases, attracted his attention to the means of renewing the air, and destroying the deleterious gas with which it was charged. The custom of lighting fires in the rooms, of burning perfumes, of the exercise of ventilators, appeared to subject them to some of the most grievous inconveniences, by destroying the uniformity of the temperature, so necessary to their progress towards perfection; and the odour of the greater part of the plants which were burnt incommoded them. The success which he had obtained in many instances by the immersion of the diseased Worms in vinegar induced him to employ the method of Citizen Guyton Morveau for purifying the air; viz., the fumes of the mineral acids.

The oxygenated muriatic acid, recommended as the most quick and powerful in its effects, was that which he employed in preference, without being prevented by the fear of its action being too powerful upon them; he, however, regulated the doses.

It was in the month of April, year 10th, that Paroletti made his first experiments, in a village near Turin. He was informed that, in one of his rooms (which received the air from two windows only, exposed to the south), the *Silk-Worms* which had passed the fourth change had become feeble, and refused the leaf; that many discharged their excrements in a liquid glutinous state and olive-coloured; that others had some red spots on the skin; that many died; that their dead bodies became hard, were covered by a mould like cotton, and assumed the appearance of a piece of chalk. The disease made a rapid progress; the symptoms became worse; the Worms, which, in the beginning, had some small red spots on them, lost by degrees their natural colour; the dead bodies were black, and passed quickly to a state of putrefaction.

Such was the state of the disease when M. Paroletti prepared himself to save these families by *fumigation.* He mixed, in a small glass vessel, one ounce of the black oxide of manganese powdered (three decigramme), on which he poured some nitro-muriatic acid, and mixed it with a glass spatula; the oxygenated acid gas produced a lively agreeable odour; he caused the fumes to pass through all the angles of the room; occasionally pour-ing into the vessel a small quantity of acid, in proportion as the vapour diminished; he continued this operation almost a quarter of an hour, but restrained the evolution of the oxygenated gas within proper limits, which the delicate nature of the insect seemed to require; and gave room, as much as possible, to the circulation of the air, through the doors and windows. *In two days,* says Sig. Paroletti, *the disease disappeared,* the Worms of this room *went to the bosco* (the name given by the Italians to the bundles where the Worms spin) *happily,* and *had complete success in their operations.* It is worthy of remark, that the *collection* of *silk* was more abundant, in proportion to the quantity of Worms. In short, many bozzoli (balls or codes of silk), in another room, better exposed, where, notwithstanding the disease had not appeared at the time of their going to the bosco, were found of a black tint, and the chrysalis had advanced to a putrefactive state; there was nothing similar to this in the rooms, which had been disinfected by *fumigation,* it convinced the author of its salutary effects; whether by purging the air from mephitic miasma, or by re-animating the vital strength of this little insect, was not determined.

A second attempt was made in the following year, with the same success, in a chamber, *where there were some hundreds of Silk-Worms attacked by a disease, which caused them to become lucid and of a yellow colour.* The effects of the gas was limited by holding open, near to them, one of the portable disinfecting vials, which Citizen Boluay prepares: almost all the worms went to the bosco, and made excellent balls of silk.

It induces us to wish (says the author of the Bulletin of the Sciences) that these experiments may be repeated by the cultivators, that a practice may be introduced, which not only would have a great influence upon this important branch of our territorial riches, but would be the means of arresting some dangerous fevers, to which those men are frequently victims, who are occupied in rearing Silk-Worms.

The author of this article can add, in confirmation of this last account, that he knows, that three considerable establishments of this kind, which were many years in good order, have been abandoned in consequence of the diseases, which those persons were found attacked with, who were engaged in rearing Silk-Worms; and, instead of planting Mulberry-trees, the culture of other articles was substituted.

IV. *On the Use of the Veronica Peregrina, in Scrophulous Cases. In a letter to the* EDITOR, *from* JAMES GLEN, *M. D., of Holmesburgh, Pennsylvania.*

DEAR SIR,

AGREEABLE to promise, I will now give you the statement of the good effects of the Veronica Peregrina, in Scrophula, as obtained from a respectable old lady near this village. Some years ago, her son, about seven years old, was attacked with a swelling in the neck, attended with a fever. It was in the spring of the year. The tumour increased for some time; the inflammation afterwards gradually abated, and the tumour lessened, but did not entirely disappear. The ensuing spring the swelling again enlarged, and an abscess was formed, which discharged a thin fluid resembling whey, and at times a thicker substance like curd. Medical advice had been followed without benefit. In this situation a Mrs. Emsley (formerly Bran) stopped at the house and called the complaint the *King's Evil.* She advised the use of a plant which had been successful with her in the cure of it. This plant has since been called Neckweed by them. It is the Speedwell; and is gathered when in blossom, the latter part of May or beginning of June, about cultivated grounds. It was used by this lady in the following manner: In brewing small-beer, a large handful of the plant was laid on the top of a gallon of it, when put to work. This was his common drink, to the quantity of a bottle a day. With this drink alone, and without any external application except simple cerate, the ulcer began soon to heal, and was completely so in the early part of the winter. The beer was continued the two succeeding summers, when a small increase in the tumour had taken place, after which time the disease quite disappeared. Since the above period, this lady has recommended the plant, in all cases that have had a like appearance, which has uniformly been successful, and she continues to have frequent applications for the remedy.

It is sometimes made a tea of, but she appears to prefer its being used in the beer, as before mentioned.

I am, &c.,

December 14, 1807. JAMES GLEN.

ing-houses, in many of the towns, upon the Connecticut-River, which are distant between twenty and thirty miles. Unluckily, the day, on which we visited the top of the hill, was not very clear, the distant horizon being filled with smoke. Our pilot informed me, that out of ten or twelve times that he had ascended the mountain, there had been only two or three perfectly clear days. Last season (he said) he accompanied General D., and Col. W., to the summit. While they were upon the very pinnacle, a severe thunder-storm came on, which, with a thick fog, completely obstructed their vision. While the lightnings were shooting, in every direction, beneath their feet, they were so completely enveloped in darkness, as to render their descent hazardous to them. They were, therefore, obliged to encamp upon the bald part of the mountain, without fuel, and to submit to incessant rains, during a whole night. I sighed, in secret, for the repetition of the same scene, that I might once behold the truly sublime in nature.'

I saw but little snow. Upon the north-east side of a peak, directly north of Mount-Washington, there was a patch of ground, comprising one or more acres, entirely covered with snow. There were, also, some snow and ice in the gullies, upon the northern sides of other peaks.

The mica interspersed among many of the rocks, upon the sides of the mountains, under certain angles of reflection, occasions them to appear peculiarly brilliant and beautiful. In this appearance, it is probable, originated the Indian tale of carbuncles, which credulous visitants have said, recede from the touch of the inquisitive traveller * * * *.

Upon the ridge of high lands directly south of Mount-Washington, there is a pond, from which the Ammonoosuck takes its source. Were a house erected a little way east of this, the ridge pole would become the dividing line of a *cloud*, the waters on the one side of which would be precipitated down the mountain, and run through the channels of the Ammonoosuck, and Connecticut, into Long-Island Sound; while those on the other side would flow, with the current of the Saco, into the ocean, at Maine.

One of the greatest curiosities presented by the White-Hills is the Notch, which is a natural road, that has (to all appearance) been carved out by the providential hand of nature, from that range of hills, to favour a communication between the Coos-country and the Ocean. A turnpike-road is now building from Bath, through the Notch, to Portland. This will throw the trade of that extensive and rapidly-settling country from Boston into Portland.

Approaching the Notch, from the north-west, after travelling several miles through a wilderness, where the eye becomes fatigued from the uniformity of prospect, and the paucity of its objects, the traveller, on a sudden, finds himself almost stopped, from an apparent termination of his road, at the base of an inaccessible mountain. Turning around, to the left, to extricate himself from the obstacles which bar his progress, his eye is abruptly met by perpendicular clefts, whose projecting rocks seem hanging over him, in the attitude of menace. After his first statue-like stare of amazement is over, in turning around to the right, he beholds, flowing in a narrow ditch by his side, the head-waters of the Saco, which have descended from cliffs more elevated, but not quite so steep, as those upon his left. Here the road is incapable of being made sufficiently wide for two carriages to go abreast. The road follows the Saco, in a meandering direction, down the east side of the mountain, the valley widening as it proceeds.

I was informed, that, in the freshets, the waters which begin their descent in the same channel divide into two courses, the one running into the Saco, and the other into the Ammonoosuck.

No mines have yet been discovered in the bowels of the mountain, though the traversing of the needle bespeaks the presence of iron-ore, in some portions of it.

The colour of some of the stones proves the existence of very small portions of iron in their compositions; as do the stones, more or less, upon all the high lands between Connecticut-River and the Ocean, over which I have travelled.

In the northern part of the county of Worcester, upon a portion of these high lands, several Mineral Springs have lately been discovered, whose medicinal waters are now fast rising into public notice. Iron and carbonic acid gas are the most abundant principles which they hold in solution.

I am, &c., dear Sir, your's,
GEORGE C. SHATTUK.

Boston, August 28th, 1807.

VI. *Memoranda respecting the Influenza, which prevailed in different parts of the United-States, in the year* 1807. *Collected by Dr.* WILLIAM CURRIE, *of Philadelphia.*

IT is reported that the Influenza prevailed at Halifax, for some time before it made its appearance at New-York; and I am certain, from the intelligence which I have received, from different correspondents, that it had existed a fortnight, at least, in New-York, before it was observed in any of the other States.

It had made very little progress in Philadelphia on the 11th of August, at which time, it appears from Dr. Ricketson's account, published in some of the New-York newspapers, more than half the inhabitants of that city were, or had been lately, affected by it. It disappeared in Philadelphia about the latter end of September.

In a letter, dated August 18th, Dr. Smith informed me, that the influenza had only just begun to make its appearance at Wilmington, in the State of Delaware, which is only twenty-seven miles from Philadelphia.

According to Dr. Spalding's observations, annexed to his Bill of Mortality for the City of Portsmouth, it did not make its appearance in that city till about the middle of August, and did not disappear till the beginning of December.

The editors of the New-York Medical Repository, in the second number of the fifth volume of their second hexade, say, a correct observer, who left New-York for the Province of Maine, on the 20th of August, found, on his arrival at Newport, that the disease had just begun to make some progress there, and that the people of Boston had begun to complain of it, but that it had not made its appearance at Kennebeck, on his arrival there on the 30th, though it was observed there a few days later.

The editors of the Medical Repository add, that the Members of Congress from Georgia and South-Carolina did not meet with the Influenza on their journey, till they arrived at Raleigh, about the 17th or 18th of October (though it appears, from the account with which I have been favoured by Dr. Harris, that it made its appearance in Charleston in the beginning of October, while the Yellow-Fever was prevalent there).

The members from Tenessee observed it, for the first time, at Staunton, which was about the same time that it was observed at Raleigh. It had not made its appearance at the Hot-Springs of Virginia on the 16th of October, but was observed, by a member from Chilicothe, in Ohio, at Hockhocking on the 12th.

All the persons within the enclosure of the Lazaretto, which is about twelve miles to the southward of Philadelphia, escaped the disease till the 20th of August, two days previous to which a pilot, by the name of Robinson, arrived ill with it from Newcastle. Captain Egger, the quarantine-master, was the first attacked by it after his arrival, and almost every person at the Lazaretto in succession soon after. This intelligence was communicated to me by Dr. Buchanan, the Lazaretto-physician.

On the 20th of August, Mrs. Adams, while indisposed with the Influenza, visited her sick child, under my care, at Mrs. Wise's, near Germantown, at which time every person in the house was free from the disease, and none of them had been in the city for more than two weeks. On the 23d, Mrs. Adams's mother, and, on the 24th, the child's nurse, were attacked with the usual symptoms of the disease; and, on the 25th, another person, who had sat in the chamber a considerable time, after Mrs. Adams's arrival, all of whom had the disease in a severe manner.

Dr. Hewson, physician to the State-Prison, in this city, informs me, that there were only two patients with the disease in the prison on the 7th of August; but that, in the course of four or five days, the number increased to about forty, and, at the end of the week, to nearly a hundred.

The weather which preceded and accompanied the Influenza, that prevailed in this country in 1789, was warm, and almost constantly dry and hazy; but, previous to its late appearance, and during its continuance, it was wetter, and more moderate in temperature, than it had been known, at the same season, for several years.

From the circumstance of the disease having been epidemic in the Cape de Verd-Islands, and in certain parts of Europe, for several weeks before it was observed in this country, which the bills of enquiry, taken at the Lazaretto, incontestibly prove; and from the manner in which it proceeded from one place to another, in succession; and from the length of time that elapsed between its appearance at New-York and some of the cities and towns to the northward and southward of it, as well as in those in other directions, I think there is sufficient reason to conclude, that the disease, however it originated, was propagated by contagion, but more active in its operation, and more extensively diffused in the atmosphere, than is observable in the generality of contagious diseases.

If it had originated from any unsalutary change in the constitution of the atmosphere, or from a general contamination of the same, the disease would have made its appearance in the same latitude, over the whole world, at the same time; for a cause so general or extensive must necessarily produce corresponding effects.

The number of patients that died of the Influenza, in the city of Philadelphia, the township of the Northern Liberties, and the district of Southwark, which contain a population of from 90 to 100,000, was thirty: of whom three were under 2 years of age, six between 50 and 60, and seven between 70 and 90.

March 4th, 1808.

VII. *Account of a Remarkable Fall of Meteoric Stones, in Connecticut. Republished from a public paper, entitled the "Connecticut Herald."*

Yale-College, Dec. 26, 1807.

MESSRS. STEELE & Co.,

AS imperfect and erroneous accounts of the late phenomenon at Weston are finding their way into the public prints, we take the liberty of enclosing, for your paper, the result of an investigation into the circumstances and evidence of the event referred to, which we have made on the ground where it happened. That we may not interrupt our narration, by repeating the observation wherever it is applicable, we may remark, once for all, that we visited and carefully examined every spot where the stones had been ascertained to have fallen, and several places where they had been only suspected, without any discovery; that we obtained specimens of every stone; conversed with all the principal original witnesses; spent several days in the investigation; and were, at the time, the only persons who had explored the *whole* ground. We are,

Gentlemen, your obedient servants,
BENJAMIN SILLIMAM,
JAMES L. KINGSLEY.

The Meteor, which has so recently excited alarm in many, and astonishment in all, first made its appearance in Weston, about a quarter or half past 6 o'clock, A. M., on Monday, the 14th inst. The morning was somewhat cloudy; the clouds were dispersed in unequal masses, being in some places thick and opaque, in others light, fleecy, and partially transparent; while spots of unclouded sky appeared here and there among them. Along the northern part of the horizon, a space of 10 or 15 degrees was perfectly clear. The day had merely dawned, and there was little or no light, except from the moon, which was just setting. Judge Wheeler, to whose intelligence and observation, apparently uninfluenced by fear or imagination, we are indebted for the substance of this part of our account, was passing through the enclosure adjoining his house, with his face to the north, and his eyes on the ground, when a sudden flash, occasioned by the transition of a luminous body across the northern margin of the clear sky, illuminated every object, and caused him to look up. He immediately discovered a globe of fire, just then passing behind the first cloud, which was very dark and obscure, although it did not entirely hide the meteor.

In this situation, its appearance was distinct and well-defined, like that of the sun seen through a mist. It rose from the north, and proceeded in a direction nearly perpendicular to the horizon, but inclining, by a very small angle, to the west, and deviating a little from the plane of a great circle, but in pretty large curves, sometimes on one side of the plane, and sometimes on the other, but never making an angle with it of more than 4 or 5 degrees. It appeared about one-half or two-thirds the diameter of the full moon. This description of its apparent magnitude is vague, but it was impossible to ascertain what angle it subtended. Its progress was not so rapid as that of common meteors and shooting stars. When it passed behind the thinner clouds, it appeared brighter than before; and when it passed the spots of clear sky, it flashed with a vivid light, yet not so intense as the lightning in a thunder-storm, but rather like what is commonly called *heat lightning*. Its surface was apparently convex.

Where it was not too much obscured by thick clouds, a conical train of paler light was seen to attend it, waving, and in length about 10 or 12 diameters of the body. In the clear sky a brisk scintillation was observed, about the body of the meteor, like that of a burning fire-brand carried against the wind.

It disappeared about 15 degrees short of the zenith, and about the same number of degrees west of the meridian. It did not vanish instantaneously, but grew, pretty rapidly, fainter and fainter, as a red-hot cannon-ball would do, if cooling in the dark, only with much more rapidity.

There was no peculiar smell in the atmosphere, nor were any luminous masses seen to separate from the body. The whole period, between its first appearance and total extinction, was estimated at about 30 seconds.

About 30 or 40 seconds after this, three loud and distinct reports, like those of a four-pounder, near at hand, were heard. They succeeded each other with as much rapidity as was consistent with distinctness, and, all together, did not occupy three seconds. Then followed a rapid succession of reports, less loud, and running into each other, so as to produce a continued rumbling, like that of a cannon-ball rolling over a floor, sometimes louder, and at other times fainter: some compared it to the noise of a waggon, running rapidly down a long and stony hill; or, to a volley of musquetry, protracted into what is called, in military language, a *running fire*. This noise continued about as long as the body was in rising, and died away apparently in the direction from which the meteor came.

The accounts of others corresponded substantially with this. Time was differently estimated by different people, but the variation was not material. Some augmented the number of loud reports, and terror and imagination seem, in various instances, to have magnified every circumstance of the phenomenon.

The only thing which seemed of any importance, beyond this statement, was derived from Mr. Elihu Staples, who said, that, when the meteor disappeared, there were apparently three successive efforts or leaps of the fire-ball, which grew more dim at every throe, and disappeared with the last.

Such were the sensible phenomena which attended this meteor. We purposely avoid describing the appearances which it assumed in other places, leaving this task to others who have the means of performing it more accurately; while we proceed to detail the consequences which followed the explosions and apparent extinction of this luminary.

We allude to the fall of a number of masses of stone in several places, principally within the town of Weston. The places which had been well ascertained at the period of our investigation were six. The most remote were about 9 or 10 miles distant from each other, in a line differing little from the course of the meteor. It is therefore probable, that the successive masses fell in this order, the most northerly first, and the most southerly last. We think we are able to point out three principal places where stones have fallen, corresponding with the three loud cannon-like reports, and with the three leaps of the meteor, observed by Mr. Staples. There were some circumstances common to all the cases. There was, in every instance, immediately after the explosions had ceased, a loud whizzing or roaring noise in the air, observed at all the places, and, so far as was ascertained, at the moment of the fall. It excited in some the idea of a tornado; in others, of a large cannon-shot in rapid motion; and it filled all with astonishment and apprehension of some impending catastrophe. In every instance immediately after this, was heard a sudden and abrupt noise, like that of a ponderous body striking the ground in its fall. Excepting one, the stones were more or less broken. The most important circumstances of the particular cases were as follows:

1. The most northerly fall was within the limits of Huntington, on the border of Weston, about 40 or 50 rods east of the great road from Bridgeport to Newtown, in a cross road, and contiguous to the house of Mr. Merwin Burr. Mr. Burr was standing in the road, in front of his house, when the stone fell. The noise produced by its collision with a rock of granite, on which it struck, was very loud. Mr. Burr was within 50 feet, and immediately searched for the body, but, it being still dark, he did not find it till half an hour after. By the fall, some of it was reduced to powder, and the rest of it was broken into very small fragments, which were thrown around to the distance of 20 or 30 feet. The granite rock was stained at the place of contact with a deep lead-colour. The largest fragment which remained did not exceed the size of a goose-egg, and this Mr. Burr found to be still warm to his hand. There was reason to conclude, from all the circumstances, that this stone must have weighed about twenty or twenty-five pounds.

Mr. Burr had a strong impression that another stone fell in an adjoining field, and it was confidently believed that a large mass had fallen into a neighbouring swamp, but neither of these had been found. It is probable that the stone, whose fall has now been described, together with any other masses which may have fallen at the same time, was thrown from the meteor at the first explosion.

2. The masses projected at the second explosion seem to have fallen principally at and in the vicinity of Mr.

William Prince's in Weston, distant about five miles, in a southerly direction, from Mr. Burr's. Mr. Prince and family were still in bed, when *they heard a noise like the fall of a very heavy body, immediately after the explosions.* They formed various unsatisfactory conjectures concerning the cause; nor did even a fresh hole made through the turf in the door-yard, about twenty-five feet from the house, lead to any conception of the cause, or induce any other enquiry than why a new post-hole should have been dug where there was no use for it. So far were this family from conceiving of the possibility of such an event as stones falling from the clouds. They had, indeed, formed a vague conjecture that the hole might have been made by lightning, but would probably have paid no further attention to the circumstance, had they not heard, in the course of the day, that stones had fallen that morning, in other parts of the town. This induced them, towards evening, to search the hole in the yard, where they found a stone buried in the loose earth which had fallen in upon it. It was two feet from the surface; the hole was about twelve inches in diameter, and as the earth was soft and nearly free from stones, the mass had sustained little injury, only a few small fragments having been detached by the shock. The weight of this stone was about thirty-five pounds. From the descriptions which we have heard, it must have been a noble specimen, and men of science will not cease to deplore that so rare a treasure should have been immediately broken in pieces. All that remained unbroken of this noble mass, was a piece of twelve pounds weight, since purchased by Isaac

Bronson, Esq., of Greenfield, with the liberal view of presenting it to some public institution.

Six days after, another mass was discovered, half a mile north-west from Mr. Prince's. The search was induced by the confident persuasion of the neighbours, that they heard it fall near the spot where it was actually found buried in the earth, weighing from seven to ten pounds. It was found by Gideon Hall and Isaac Fairchild. It was in small fragments, having fallen on a globular detached mass of gneiss rock, which it split in two, and by which it was itself shivered to pieces.

The same men informed us that they suspected another stone had fallen in the vicinity, as the report had been distinctly heard, and could be referred to a particular region somewhat to the east. Returning to the place, after an excursion of a few hours to another part of the town, we were gratified to find the conjecture verified, by the actual discovery of a mass of thirteen pounds weight, which had fallen half a mile to the north-east of Mr. Prince's. Having fallen in a ploughed field, without coming into contact with a rock, it was broken only into two principal pieces, one of which, possessing all the characters of the stone in a remarkable degree, we purchased: for it had now become an article of sale. It was urged that it had pleased Heaven to rain down this treasure upon them, and they would bring their thunderbolts to the best market they could. This was, it must be confessed, a wiser mode of managing the business, than that which had been adopted by some others, at an earlier period of these discoveries. Strongly impressed with the idea that these stones contained gold and silver, they subjected them to all the tortures of ancient alchemy, and the goldsmith's crucible, the forge, and the blacksmith's anvil, were employed, in vain, to elicit riches which existed only in the imagination.

Two miles south-east from Mr. Prince's, at the foot of Tashowa-hill, a fifth mass fell. Its fall was distinctly heard by Mr. Ephraim Porter and his family, who live within 40 rods of the place, and in full view. They saw a smoke rise from the spot, as they did also from the hill, where they are positive that another stone struck, as they heard it distinctly. At the time of the fall, having never heard of any such thing, they supposed that lightning had struck the ground, but after three or four days, hearing of the stones which had been found in their vicinity, they were induced to search, and the result was the discovery of a mass of stone in the road, at the place where they supposed the lightning had struck. It penetrated the ground to the depth of two feet in the deepest place; the hole was about twenty inches in diameter, and its margin was coloured blue, from the powder of the stone struck off in its fall.

It was broken into fragments of moderate size, and, from the best calculations, might have weighed twenty or twenty-five pounds.

The hole exhibited marks of much violence, the turf being very much torn, and thrown about to some distance.

It is probable that the four stones last described were all projected at the second explosion; and, should one be discovered on the neighbouring hill, we must, without doubt, refer it to the same avulsion.

3. Last of all, we hasten to what appears to have been the catastrophe of this wonderful phenomenon.

A mass of stone, far exceeding the united weight of all which we have hitherto described, fell in a field belonging to Mr. Elijah Seely, and within 30 rods of his house.

A circumstance attended the fall of this which seems to have been peculiar. Mr. Elihu Staples, a man of integrity, lives on the hill, at the bottom of which this body fell, and witnessed the first appearance, progress, and explosion of the meteor. After the last explosion, a rending noise, like that of a whirlwind, passed along to the east of his house, and immediately over his orchard, which is on the declivity of the hill. At the same instant a streak of light passed over the orchard in a large curve, and seemed to pierce the ground. A shock was felt, and a report heard like that of a heavy body falling to the earth; but no conception being entertained of the real cause (for no one in the vicinity, with whom we conversed, appeared to have ever heard of the fall of stones from the skies), it was supposed that lightning had struck the ground. Three or four hours after the event, Mr. Seely went into his field to look after his cattle. He found that some of them had leaped into the adjoining enclosure, and all exhibited strong indications of terror.

Passing on, he was struck with surprize at seeing a spot of ground which he knew to have been recently turfed over, all torn up, and the earth looking fresh, as if from recent violence. Coming to the place, he found a great mass of fragments of a strange-looking stone, and immediately called for his wife, who was second on the ground.

Here were exhibited the most striking proofs of violent collision. A ridge of micaceous schistus, lying nearly even with the ground, and somewhat inclining, like the hill, to the south-east, was shivered to pieces, to a certain extent, by the impulses of the stone, which thus received a still more oblique direction, and forced itself into the earth, to the depth of three feet, tearing a hole of 5 feet in length, and 4½ feet in breadth, and throwing large masses of turf and fragments of stone and earth to the distance of 50 and 100 feet. Had there been no meteor, no explosions, and no witnesses of the light and shock, it would have been impossible for any person contemplating the scene to doubt, that a large and heavy body had really fallen from the skies, with tremendous momentum.

This stone was all in fragments, none of which exceeded the size of a man's fist, and was rapidly dispersed by numerous visitors, who carried it away at pleasure. Indeed, we found it very difficult to obtain a sufficient supply of specimens of the various stones; an object which was at length accomplished, principally by importunity and purchase. From the best information which we could obtain of the quantity of fragments of this last stone, compared with its specific gravity, we concluded that its weight could not have fallen much short of 200 pounds. All the stones, when first found, were friable, being easily broken between the fingers; this was especially the case where they had been buried in the moist earth, but, by exposure to the air, they gradually hardened. Such were the circumstances attending the fall of these singular masses. We have named living witnesses; the list of these may be augmented, but we consider the proof as sufficient to satisfy any rational mind. Farther confirmation will be derived from the mineralogical description and chemical examination of these stones.

The specimens obtained from all the different places are perfectly similar. The most careless observer would instantly pronounce them portions of a common mass, and different from any of the stones commonly seen on this globe.

Of their form nothing very certain can be said, because only comparatively small fragments of the great body of the meteor have been obtained. Few of the specimens weigh one pound, most of them less than half a pound, and from that to the fraction of an ounce. Mr. Bronson's piece is the largest with which we are acquainted; we possess the next, which weighs six pounds, and is very perfect in its characteristic marks, and we have a good connection of smaller specimens, many of which are very instructive. They possess every irregular variety of form which might be supposed to arise from accidental fracture with violent force. On many of them, however, and chiefly on the large specimens, may be distinctly perceived portions of the external part of the meteor.

It is every where covered with a thin black crust, destitute of splendour, and bounded by portions of the large irregular curve which seems to have enclosed the meteoric mass. This curve is far from being uniform. It is sometimes depressed with concavities, such as might be produced by pressing a soft and yielding substance. The surface of the crust feels harsh, like the prepared fish-skin, or shagreen. It gives sparks with the steel. There are certain portions of the stones covered with the black crust, which appear not to have formed a part of the outside of the meteor, but to have received this coating in the interior parts, in consequence of fissures or cracks, produced probably by the intense heat to which the body seems to have been subjected. The specific gravity of the stone is 3,6, water being 1. The colour of the mass of the stone is mainly a dark ash, or more properly a leaden-colour. It is interspersed with distinct masses, from the size of a pin's head to the diameter of one or two inches, which are almost white, resembling in many instances the crystals of feldtspar in some varieties of granite, and in that species of porphyry known by the name of *verd antique*.

The texture of the stone is granular and coarse, resembling some pieces of grit-stone. It cannot be broken by the fingers, but gives a rough and irregular fracture with the hammer.

On inspecting the mass, four distinct kinds of matter may be perceived by the eye.

1. The stone is thickly interspersed with black globular masses, most of them spherical, but some are oblong and irregular. The largest are of the size of a pidgeon-shot, but generally they are much smaller. They can be detached with any pointed iron instrument, and leave a concavity in the stone. They are not attractable by the magnet, and can be broken with the hammer.

2. Masses of yellow pyrites may be observed. Some of them are of a brilliant golden-colour, and are readily distinguished with the eye.

3. The whole stone is thickly interspersed with metallic points, many of them evident to the eye, and they appear numerous and distinct with a lens. Their colour is whitish, and was mistaken by the discoverers of the stone for silver. They appear to be mainly malleable iron, alloyed with nickel.

4. The lead-coloured mass, which cements these things together, has been described already, and constitutes by far the greater part of the stone. After being wet and exposed to the air, the stone becomes covered with numerous reddish spots, which do not appear in a fresh fracture, and arise manifestly from the rusting of the iron.

Finally, the stone has been analyzed in the laboratory of this College, according to the excellent instructions of Howard, Vauquelin, and Fourcroy. The analysis was hasty, and intended only for the purpose of general information. The exact proportions, and the steps of the analysis, are reserved for more leisure, and may be given to the philosophical world through another medium. It is sufficient for the general reader to be informed, that the stone appears to consist of the following ingredients: *silex*, *iron*, *magnesia*, *nickel*, *sulphur*.

The two first constitute by far the greater part of the stone; the third is in considerable proportion, but much less than the others; the fourth is probably still less, and the sulphur exists in a small but indeterminate quantity.

Most of the iron is in a perfectly metallic state; the whole stone attracts the magnet, and this instrument takes up a large portion of it when pulverized. Portions of metallic iron may be separated, so large that they can be readily extended under the hammer. Some of the iron is in combination with sulphur in the pyrites, and probably most of the iron is alloyed by nickel.

It remains to be observed, that this account of the appearance of the stone accords very exactly with the descriptions, now become considerably numerous, of similar bodies which have fallen in other countries, at various periods; and with specimens which one of us has inspected, of stones that have fallen in India, France, and Scotland. The chemical analysis also proves that their composition is the same, and it is well known to mineralogists and chemists, that no such stones have been found among the productions of this globe. These considerations, together with the facts that are immediately to be mentioned, must, in connection with the testimony, place the credibility of the facts asserted to have recently occurred in Weston beyond all controversy.

The falling of stones from the clouds is an event which has frequently happened in Europe, in Asia, and in South-America. The accounts of such phenomena were, for a long time, rejected by philosophers, as the offspring of ignorance and superstition. Several facts of this kind, however, within a few years, have been proved by evidence so unexceptionable, as to overcome the most obstinate incredulity. It is now admitted, not only that such phenomena have existed in modern times, but that the accounts of similar events, in former ages, are in a high degree probable. As this is the first time that stones are known to have fallen in this part of America, it may not be uninteresting to those who have paid little attention to this subject, or who still hesitate to admit that such things have happened, to see a statement of several similar events in other countries, and some of the evidence by which they are supported.

In 1492, on the 7th of November, at Ensisheim, in Upper Alsace, a stone fell from the atmosphere, which weighed 260 pounds. Contemporary writers agree in stating, that, on this day, between 11 and 12 o'clock in the morning, a loud explosion was heard at Ensisheim, and that this stone was soon after seen to fall, in a field at no great distance from the town. This stone, till within a few years, was preserved in the parish church of Ensisheim.

In 1762, two stones fell near Verona, one of which weighed 200 and the other 300 pounds. Three or four hundred persons were witnesses of the event.

In 1790, on the 24th of July, a shower of stones fell near Agen, in Guienne. About 9 or 10 o'clock at night, a meteor was seen moving through the atmosphere with very great velocity. A loud explosion was soon heard, which was followed, after a short interval, by a shower of stones, over a considerable extent of country.

In April, 1802, the same thing happened at L'Aigle. Biot, a member of the French National Institute, who visited the place to ascertain the fact, writes to this effect: Persons of all professions, manners, and opinions, ecclesiastics, soldiers, and labourers, men, women, and children, agree in referring the event to the same day, the same hour, and the same minute. They say they saw the stones descending along the roofs of the houses, break the branches of the trees, and rebound after they fell upon the pavement. They say they saw the earth smoke around the largest of them, and that the stones were still hot after they had taken them in their hands. The mineralogical collections, formed on the spot with the greatest care, contained nothing of the kind. On a sudden, and only since the time of the meteor, these stones have been found, and within a certain extent.

Within fifteen years past the falling of similar bodies, under similar circumstances, has happened in Portugal, Bohemia, France, Great-Britain, India, and South-America.

To account for the existence of these stones, various theories have been formed by philosophers. Some have supposed them to be only common stones struck with lightning, and partly melted. But this theory has now no advocates. A less fanciful hypothesis is, that they are masses of matter thrown from volcanoes. But to this there are serious objections. No such bodies are found near the craters of volcanoes, or are known to be projected from them; and, in many instances, these bodies have fallen several hundred, and even several thousand, miles from any known volcano. Mr. Edward King has varied this theory, and supposes that these substances are thrown from volcanoes, not in solid masses, but in the state of ashes or dust. He supposes that these ashes, descending in a cloud, become condensed, take fire, and produce numerous explosions. According to him, the pyritical, metallic, and argillaceous particles melt, are suddenly chrystalized and consolidated, and fall in masses to the ground. This explanation evidently involves as great difficulties as those which it is intended to obviate. Some philosophers have supposed, that these stones are thrown from terrestrial comets. Not to mention any other objection to this hypothesis, it will by no means account for such a phenomenon as appeared at Sienna, in 1794, when stones descended, not from a moving meteor, but from a luminous cloud. Other philosophers, ascribing to these stones an origin still more extraordinary, suppose them to be projected from the moon. Admitting that bodies can be projected beyond the sphere of the moon's attraction, they must move round the earth in one of the conic sections, and all the difficulties attending the preceding hypothesis embarrass this. The subject must be acknowledged to be involved in much obscurity, and the phenomenon, till we are possessed of more facts and better observations, must be considered inexplicable.

VIII. *Some Account of the Success of the Plant called Jestis-weed, in curing the Disease induced by the Bites of the Rattle-Snake, and other Venomous Serpents. Communicated to the* EDITOR, *by* MR. HAYNESWORTH.

Case 1. A BLACK man, a servant of the Rev. B. G., being sent to the house of Mr. J. S. for a scythe (an instrument used in cutting Indigo-weed), late in the evening, stayed there all night. Very early the next morning, at the dawn of day, he got up and went to the door of the Negro-house in which he slept, where he was bitten, just above the ancle, by a Rattle-Snake, with five rattles. Mr. S. was immediately called, and found the fellow lying on the floor, groaning with pain, and very much swelled. Nothing was done for him till Mr. G., his master, arrived, a little after sun-rise. At this time, he was swelled prodigiously; his eyes appeared ready to start out of his head, and it was with the greatest difficulty that he breathed, or swallowed any thing. The decoction of the plant called Jestis-weed, made by boiling a handful of the entire plant in a quart of new-milk, down to a pint, was given him by table-spoonfuls every few minutes. He vomited twice, but afterwards the medicine staid on his stomach, and he got better. In less than an hour, the difficulty in breathing became less considerable, and the pain and swelling began to subside. In 48 hours, the negro returned to his employment of cutting Indigo.

Case 2. Mr. S., accidentally calling upon his neighbour, Mr. J. R., found one of his Negro-women very ill, so ill that the family thought she must die. She had been bitten by a Snake three days before, and nothing that had been tried gave her any relief. Mr. S. advised the Jestis-weed. It was prepared and given her, and she rapidly recovered.

Case 3. Mr. S. says, he, and some others, were hunting below our lower mill-dam, last summer; one of the dogs in the swamp crying out, and not coming when called, J. J. went in and found the dog, bitten, stretched out, and unable to walk. He carried him home, and gave him the decoction of the Jestis-weed, and he rapidly recovered.

Case 4. J. K., a ploughman, was in the woods hunting horses, when a Snake bit him on his ancle. He tied his hat-band, which was very strong, round the limb above the wound, and attempted to return home. The swelling increased so fast, that he found it necessary to move the hat-band above his knee, before he got home. *Jestis*, who first used the plant, and from whom it receives its name, was sent for. Before he arrived, in consequence of the swelling, the whole limb seeming ready to burst, the band was moved as high up as possible on the thigh. Jestis cut off the bandage, and gave his medicine. The swelling immediately began to subside, and K. perfectly recovered, in a short time.

Case 5 Miss E. O'N. was bitten, about 8 o'clock in the morning, by a Rattle-Snake, on her ancle. The wound was like a small scratch, and apparently insignificant; the pain also was slight at first, but sufficient to prevent her from walking. In the afternoon she was assisted into the yard, where she suddenly fainted; recovering from her faintiness some time after, she began to be very bad. Her father prepared the medicine, but, finding it disagreeable, she refused to take it. The next morning, being very ill, her friends collected to see her die. She was now willing to take the medicine, but her stomach rejected it. Some of the attendants thought of giving it in glysters: this was done, and immediately she became easier. Shortly after, her stomach retained the medicine in small doses, and the swelling and pain abated. In three days time, she was well enough to go out and visit one of her friends.

Case 6. Mr. B. was bitten by a Snake, and used the Jestis-weed. It cured him in a very short time.

Case 7. Mr. J. S. was bitten by a Rattle-Snake, on his little toe. He killed the snake, and by that time was very ill. It seemed to him, that flashes of lightning were continually blazing around him, and every few minutes glows of heat ran over his whole body. His pains were great, and his sickness at stomach extreme. His wife held a chunk of very vivid fire near the wound (which, she says, extracted the poison by drops); but he continued to grow worse, till the Jestis-weed medicine was prepared. He then drank as much as he could, a cupful two or three times in 15 minutes, and more afterwards, as he found necessary. The first dose relieved him in some measure, and he rapidly recovered. The foot continued swelled, throbbing, and somewhat painful, for a week or more, but was cured by a poultice of the weed boiled with corn-flour.

Case 8. One of Mr. M. S.'s children was bitten by a large Rattle-Snake. None of the family knew Jestis-weed, and it could not be procured till next day. The child was screaming with pain all night, and, by the time the medicine was ready, she was so prodigiously swelled, that her eyes were completely closed. In two hours after taking the medicine, she could open her eyes, and the pain was gone. In a day or two she perfectly recovered.

Case 9. Mr. W. D., in the spring of 1797, was bitten by a large Rattle-Snake, just above his ancle. He first applied Peach-leaves, boiled in salt and water, to the part, which did no good. He next scarified all round the wound, but, this not affording any relief, he made trial of the Jestis-weed. By the time he had drank a tea-cupful of the medicine, he was easier, and the pain and swelling began to decrease. In his foot some swelling remained for near a fortnight, when he perfectly recovered.

Many more cases of the efficacy of the Jestis-weed might be collected, but I think these sufficient. No one in the neighbourhood doubts its efficacy, as not a single person has died on the Hills, in consequence of the bite of a Snake, since this remedy was discovered, about 12 years ago.

IX. *Miscellaneous Observations on the Natural History of the Human Uterus. By* DR. DAVIDGE, *of Baltimore, in a letter to the* EDITOR.

DEAR SIR,

I AM entering on a compartment to which I am no stranger. Its topography is familiar to me: I have traversed its fields; passed through its walks; and explored its most intimate recesses, with great industry, care, and minute observation. At least every day of my life, I am engaged in the contemplation of the objects of this division, and ought, in some measure, to be acquainted with them.

To be qualified to judge accurately, and well, of what is without the scheme of nature, we should be well acquainted with what is within her plan. A partial view of her operations will lead us into error, and inconclusive deduction. When I cast my eyes over the vast scenes of nature, I with much delight observe her plan; I see animals, vegetables, and minerals: animals and vegetables living, and reproducing; minerals growing, each after its own kind.

When I look into the body of a human female, I behold organs of higher and lower importance: the lungs to oxidate the blood, the stomach to digest the food, the kidneys to secrete the urine, the uterus to bear the young, &c. The uterus and the ovaria, with their appendages, are, equally with the stomach and lungs, provided by nature. They are not morbid productions. Each organ by nature is destined to certain functions, or offices. Am I deceived in this? Can the ovaria and uterus be organs of nature, and yet conception and gestation be "grades of disease?" Can any human mind, in its calmer moments, when relieved from the importunate entreaties of a new-born theory, conceive any thing so incongruous, as that the ovaria and uterus are organs of nature, and yet conception and gestation are grades of disease? Let us examine into this opinion.

In every perfect female body, we find organs of generation, as well as organs of digestion and respiration. Our venereal appetencies are as regular as our appetites for aliments of life, or our demands for the renewal of the oxigenous stimulus to our blood; and it is as natural to gratify the one as the other. If we cease to gratify our appetites for food, or demands for respiration, we die; if we cease to indulge our appetites for venery, our kind becomes extinct. The former are death to the body; the latter is death to the race.

Now, seeing that the organs of generation, with their appetencies, are strictly conformable to the original intentions of nature, with what modesty or apology do we the result of these appetencies, and the func- hich the organs are destined, are grades of ? Can an organ with its instinct be natural, and rtheless the only function of which it is capable be morbid, or a grade of disease? Whenever a function is performed agreeably to the fundamental and immutable laws of nature, and without which intermediate function the grand scheme of nature becomes broken and discontinuous, we intelligibly and with understanding argue such function to be natural, or within the plan of nature. Of the grand though inscrutable catenation of human reproduction, that pregnancy is a distinguished link, no man in the possession of a sound mind can entertain the most extenuated doubt. If, then, a link connecting and alone appending the subsequent to the precedent generation, how can it be said to be a disease? A disease is a mere contingency; a contingency declarative of an aberration from the healthy economy of the animal body. Disease is an accident to which nature is liable, but no part of her economy can it constitute. But conception and gestation are the very work of the maturity and health of the animal body.

Were pregnancy a disease, or, as gentlemen please to phrase it, a grade of disease, then were pregnancy, in its inception, progression, and termination, truly fortuitous and incidental. The sublime order of the universe would be forced from its connection, its great design be marred, ruined, and a second chaos involve its beauties. Pregnancy is within the controul of uniform, determinate laws, consecutively subject to the common government of the economy of the body. The uniformity and regularity of the laws of utero-gestation are inferrible from the fixedness and constancy of its term.

That pregnancy is laid out and planned, in the deep, unsearchable projection of nature, is deducible from the accordance of the marriage state, bearing children, with the most perfect health. Not unfrequently, indeed, the stimulus of matrimony bears the body above diseases, not otherwise manageable by our art. That women, while pregnant, should be favoured with a total exemption from disease, is not at all consequential of the position, that gestation is a condition of nature. Nature may as readily be encumbered by disease, its various ramifications entwining about her springs, in one part of her motions as another. Dyspepsia at times invades the stomach, but still digestion is a natural function; tubercles may be diffused through the lungs, interrupting their play, nevertheless respiration is a healthy animal operation.

Can a part of the economy of nature be so ameliorated, by medical aid, as to be better suited, in its relations and operations, to the purposes of its office, than it is by its original constitution? I answer in the negative. Then why shall we break in upon nature's works with our agency? Gentlemen not only upturn the foundations of the physical world, but they dream of suspending the very denunciations of Heaven on the point of their lancet.

During gestation, nature may, in her economy, be encumbered by disease; and the plan of her procedure be disturbed. But, as the cause of this disturbance is not uniform in its specific relations, neither can the means appealed to be without variety in their kind. To the particular character of the disease, with which the pregnant female may be oppressed, the remedies, in extent and nature, must be accommodated. If the powers of life fall low, and she is unnerved by languor, arising from luxury or poverty of diet, let her be advised to suitable nutriment, cordial beverage, exhilarating company, and regular exercise. If the stomach be distressed by dyspepsia, she is directed to magnesia, alkalies, emetics, tonics, or lime-water; to which we add exercise, the first and best mode of infusing vigour into the system, with all its organs. If the bowels be slow, aperients are pressed into service. If the body be raised in its action by too high stimulation, general or local, the circulation is to be tamed, the system tranquillized, the rigid fibre relaxed, by the abstraction of blood; which abstraction, in degree, will be according to the accidents of each individual case, the general hurry, or local impediment. All general rule is inadmissible; there can be no uniformity of usage, in things of themselves contingent.

As I advance, I find that I have some matters of etiquette in science to adjust with an ingenious gentleman of Wilmington, Dr. Vaughan, and also with a learned lecturer of Philadelphia. While I use towards these gentlemen every personal civility and courtesy, I must be permitted to indulge in liberal criticism on their sentiments. Error in youth is excusable, but in teachers should be chastised.

I proceed, in the first place, to notice, in detail, some propositions from the pen of Dr. Vaughan, a gentleman of much character and ingenuity, and who, by writing, has became a teacher in the art of Midwifery. This gentleman lays it down, as a part of his ground-work, that "several pounds of blood are retained with the mother, and transformed into fœtal organization, and that this fluid is the menses, reserved during ten lunar months."

Dr. Vaughan promised, that, "after giving Mr. White's opinion, with its authorities, in his own language, he would reply to them in detailed order." He then subjoins: "It is immaterial to the present question, whether the catamenia be occasioned by general plethora or not; if a given quantity of the sanguiferous fluid, ordinarily discharged by essential laws" (surely not a morbid hemorrhage dependent on essential laws), "and retained in the pregnant state, the consequences are the same." But if this given quantity be unequal to the sum of the child's weight, the consequences will be very dissimilar; and that it is unequal to it, we infer from the respectable testimony of Dr. Vaughan himself.

In his foot-note, he says, that "the weight of the full-grown fœtus, and its appendages, so far exceeds the ordinary sum of the catamenia in ten lunar months, that other excretions must be lessened in a considerable degree." Rep. v. 6, p. 152.

This foot-note gives to me all I contend for; it maintains, in the face of all opposition, that there cannot possibly be "a retention or accumulation," in either the general or uterine system, during the latter months of pregnancy, but if there is this contribution laid on other excretions, what occasion can there be for the use of the lancet?

The Doctor then refers us, in a summary way, to the opinions of Dr. Rush: opinions always respectable, and entitled to the highest deference from the medical world. But opinions and detailed arguments are not the same, in my view.

At this moment, my pen is arrested by the melancholy tidings, that my able and worthy correspondent has paid the great debt of mortality. In his mind burned the lamp of science; from his heart rose the incense of piety; and through his actions flowed the warm stream of benevolence. But, alas! nature has her demands, and in a tone and style too forcible and intelligible to be misunderstood, speaks to her son: "dust thou art, and unto dust shalt thou return."

The menses are, with me, a natural secretion from the arteries of the womb under ovarial influence. They are the first to premonish even the tender virgin herself of nubile maturity. They inspire their lovely authoress with new desires, admonish her to new hopes, and throw about her air all the ornament and force of irresistible captivation, attraction, and grace.

When this conceptious female, from sexual intercourse with her manly companion, becomes pregnant, the uterine arteries cease their functions; a new, though temporary, organ begins its office. The placenta, endowed with the function of a gland, provides nutriment for the fœtus. There are solitary cases, in which a species of morbid hemorrhage, or vicarious menses, continues throughout pregnancy. Is this efflux of blood from the vessels of the os tincæ?

But to return, and fairly examine into the merits of the proposition, giving it the fullest possible bearing on the subject. I will, for the moment, concede the point before us. Let the menses be formed, and be retained, according to the pleasure of the writer. The total sum of fluid, amassed during nine calendar, or even *ten lunar* months, would not be, upon the most liberal estimate for fœtal organization, more than five pounds of aliment, allowing six ounces to each catamenial period. An ordinary child weighs from ten to fifteen pounds: that is, from five to ten pounds more than the total sum of the fluid retained.

How far does this go to demonstrate, that fœtal organization derives its sources from the menstruous fluid? And here I might, not inaptly, subjoin a second problem: If the human fœtus be made up of the menstruous fluid, whence are the materials for the organization of the young of the lower animals furnished? They have no menses.

The Doctor's proposition extends much farther. It not only insinuates, but directly maintains, that this fluid is retained, and yet is transformed into fœtal organization! What! is the menstrual fluid retained with the mother, constituting a source on which we may advantageously draw with the lancet, and moreover is transformed into fœtal organization? This is a species of logic, to my understanding, neither forcible nor clear.

The doctrine is wholly wrong, both in its premises and conclusion; and, of all hypotheses within the reach of a sprightly fancy, the most unhappy in its deductions for the general rule of blood-letting, with which it was proposed to quadrate.

Still further to illustrate his favourite doctrine of blood-letting during utero-gestation, this gentleman refers us to the concentration of excitement in the gravid uterus, and the extra-vitality of impregnation; to the tenacity of pregnant females for life, and the surviving existence of the fœtus in utero, after the death of the mother. I am not prepared to determine, whether an impregnated female is more vivacious than an unimpregnated one. There are not sufficient documents before the public, for us to enter on this disquisition. That a fœtus in utero survives five minutes, or even two, the death of the mother, is what the facts hitherto furnished by faithful obstetric record directly oppose. The child ceases to live, immediately after it ceases to receive, through the mediation of the placenta, oxigen from the mother's blood. The chick may have its blood oxidated through the shell with which it is encased, but the human fœtus cannot have this necessary supply through the walls of the abdomen.

Obstetric history expands to our view many instances of judicious, well-managed efforts to save the child on the death of the mother; but their ill success has devolved the iteration of these efforts on those who can believe, that the fœtus can live without the constant renovation of the oxigenous stimulus.

We have no materials of which the theory of the continuity of circulation, between the mother and child, can be constructed. Injections, thinner than red-blood, have not, as yet, found their way from one to the other. And, were the circulation continuous, and immediate, a lifeless mother could not support a living child. The alimental supply before birth, as before observed, is by means of the placenta, acting as a gland, as it is subsequently furnished by the mammæ.

Dr. Dewees, in his thesis, the mirror from which all the features of his doctrine are reflected to us, adopts the hypothesis, "that they (pregnancy and parturition) ought to be considered as diseases, according to the opinion of Dr. Rush, one of the greatest ornaments of medicine, in the present or any antecedent age. This he infers from the necessity, in too many instances, a few cases only excepted, of our being obliged to mitigate *their* violence, or shorten *their* duration*."

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* "Pregnancy." "Though a *natural* alteration of the animal economy, which every female seems originally formed to undergo, and hence *not* to be considered as a state of *disease*," &c.

Encyclopædia.

To this I can affix no definite, determinate idea. "Shorten *their* duration!" And are we obliged, in the general, to shorten the duration of pregnancy? The Doctor cannot possibly be serious in this; yet he says, that, "we are *obliged;*" it is not a point of choice, "to mitigate *their* violence, and shorten *their* duration," viz., the *duration of pregnancy* and parturition. Then pregnancy has no fixed, legitimate term! It is as salutary and regular at six, as at nine months! Would the extraction of a given quantity of the blood of the chesnut-tree improve the maturation of its nut, or aid the evolution of the burr?

A rose, whether cultivated in America, or transplanted to the soil of Russia, howsoever altered in its foliage, its efflorescence, or the tints of its petals, continues to be one of the chief *natural* ornaments of the parterre. Pregnancy remains, amidst all the mutations of climate, and cultivation of civilization, a natural condition; an indefeasible right of nature.

"The uterus is a hollow viscus, in which the great *object* of conception is performed." To my understanding, this sentence is extremely obscure; it is wholly unintelligible. "The uterus is a hollow viscus, in which the great *object* of conception is performed." The author certainly does not wish to convey the idea, that the uterus is the organ of conception; and yet to me, the sentence is insusceptible of any other interpretation. It leaves no room for his brilliant discovery of the passage of the second ovum, in case of superfœtation, along the fallopian tube; its separation of the membrana decidua from the parietes of the uterus, and getting within this hollow viscus. Of all the discoveries in the mystery of generation, this is by far the most splendid*. An embryon, with its water and involucra, the whole not equiponderant with two grains, forcibly breaking up the attachment of the membrana decidua, and making for itself room in the cavity of the uterus! Does this embryon force its way by mechanical powers, or melt down the band of attachment between the lining membrane and wall of the uterus, by certain chemical properties?

The sentence in itself is a handsome display of the ability with which some gentlemen are favoured, of making a pretty arrangement of words, without infusing into them the power of making a definite impression on the reader's mind.

But again to the thesis. "However easy the act of child-bearing may be, among savage tribes, and certain individuals in various states of society, we find it, among others, an operation of great pain, and frequent danger."

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* "This resistance will, however, be soon overcome; either by the ordinary efforts of the tube, or by the ovum resting unusually long, and beginning to develope, obliging the mouth of the tube to open," &c. *Museum*, V. 1, No. 2, p. 172.

What efforts are these, that can overcome the resistance offered by the attachment of the lining membrane of the gravid uterus? The more the ovum developes, the less the probability of a passage through the mouth of the tube The ovum, under these circumstances, must remain in the tube, and constitute an extra-uterine fœtus. Perhaps the ovum would travel into the uterus, as Dr. Harrison's semen would travel out of it. *See Museum*, V. I, No. 1, p. 39.

Here is an assumption of principles, upon the begged question; a gratuitous assumption of the very points at issue. The sentence, with the following parts of the paragraph, of which it is a member, embraces as acknowledged facts, two points: the one, that the parturient act with the savage is uniformly easy, without pain or difficulty; the other, that, with the civilized woman, civilization and refinement have produced difficulty, pain, and danger. Neither of these positions are true.

The first rests upon the insufficient grounds furnished by the reports, vague and highly questionable, of travellers. Travellers are privileged men; in an especial manner so, when they undertake to write and speak of things, to which they could not possibly have access. Whatever is uncommon, or without the usual routine of things, is, by a savage, uncultivated people, in a high degree deserving of notice; is among the first objects of communication to a stranger. The reports, in themselves, convey to me the fullest satisfaction that they are not the facts of observation; that they are mere unusual, extraordinary matters, which, from their infrequency and being out of the usual course of things, become the marvellous points of communication. But even the authors of these wonderful tales do not tell us, that the labour with the savage is without pain. From these persons we collect the information, that, among this unsettled sort of people, there are no persons, male or female, devoting themselves to the obstetric art. If this be correct, whence is their information? Have they made it a matter of private enquiry with the individual Squaws?

Are there no instances of preternatural presentation among the Calabrian societies; such as that of the arm, back, or belly? Would these too be without pain or difficulty? These tales of uncivilized life are told to us in a most uncivil manner. They are an indecorous attack on the understanding of every man.

The savage, the negro, and the poorer sort of peasantry, are in their condition nearly similar. They present not dissimilar phenomena to the eye of observation. And with them there is naturally, and originally, in relation to the commencement of labour, an equal degree of difficulty, pain, and danger. Nature, in the general, is upon the same scale, and is safe; I speak of the negro, the peasant, and the savage. Mischief is the result of rude and clumsy art, in the hands of adventurous ignorance.

In fine, we have no authorities upon which we can, with safety, proceed in our investigations into the state of parturition, amidst savage life. And what are we to think of the narratives of men, totally without the means of instruction, in respect to the affairs of the woman of the forests, when a lecturer can publish to the world, "that the labours of the brute are not generally attended with pain, or difficulty." Have any of these intelligent travellers bee [illegible] f the lion, or the lair of the wild-hog, t [illegible] the hole of the fox? The female horse may die with her foal in her matrix; there are birds of prey and quadrupeds, fierce and carnivorous: who is to save from the talons of the one, and the jaws of the other, the objects of our research? In speaking of the brute, the Doctor cannot certainly allude to such as browse our meadows, bound along our plains, or to the trusty animal that faithfully guards the shepherd's flock. Such news, bearing the stamp of authenticity, would be joyous tidings to the farmer.

The Abbé Raynal wrote a book, the object of which was to prove to the credulous world, the deterioration of all animals, even man, in this western world. From whom did the Abbé get his information? From travellers. From whom do learned gentlemen get their information? From travellers.

From the most correct view I can get of the subject, I am inclined to believe, that natural labours (all labours are natural in themselves, and only unnatural in their circumstances) are as frequently interrupted by rigidity of the os uteri, with or without inflammation, among the laborious negroes of the farm, or the peasants of the thatched hut, as among the most delicate ladies, who live amidst all the luxuries of civilization and refinement; indeed, much more so. My opportunities, on this head, are not very limited.

It avails nothing to say, that we have departed from the life of the savage, and that an equal departure from the simple dictates of nature, in search of a corrective, is necessary. With the savage and with the civilized woman, the mechanism of labour is the same. There is a certain compound resistance to be overcome by the co-operation of given forces of expulsion. A change from the savage mode, to that of civilized life, does not, and cannot, alter the relation between this sum of compound resistance and these forces of expulsion. It neither abstracts from the aggregate of one, nor diminishes the efficiency of the other. If the one be altered, the other is equally altered. They are equally dependent on the same economy of the general whole.

Can we believe, with the lecturer, that "the man (a specific term, by which an individual is put for the species) of the civilized world, has lost much of his original strength," &c., and yet, that this man, thus plundered of his powers, is more subject to inflammation, &c.? Sir, what do you think of that philosophy which points out the lax fibre, the body with ruined energies, as the proper subject of rigidity, the very object eligible for the lancet? Can your ingenuity unfold to you, how the delicate lady, whose bed is down, and whose life is inaction, can be more obnoxious to inflammation, rigidity, &c., and better able to bear large abstractions of blood, than the wild savage, whose body, like that of the hardy rustic, is braced by exercise, whose blood is pure and rich, from a simple, yet substantial diet*?

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* We generally find the women of the country more obnoxious to it (pain) than those of *cities*." *Museum*, Vol. I, No. 3, p. 280.

And this is, I suppose, a logical deduction from the proposition, that "pain is produced by civilization and refinement!" Then the

But, to fill up the measure of this singular philosophy, the lecturer declares, that, although the man of the civilized world has lost much of his original strength, "the circular muscles, the heart and intestines, as far as we can determine, have lost nothing of their primitive powers." Now, if the circulation, which depends on the heart, and the digestion, the office of the alimentary canal, be in the vigour they were in during the days of our first parents, the man of the civilized world cannot have fallen off much. Where there is a vigorous circulation, and strong digestive powers, the muscular energies of the body cannot be low. I allude to those muscular energies (I believe the long, straight muscles to be concerned) which qualify the Hibernian, in proud contempt, to poise his shilelah, the nervous Englishman to shake the very walls of the theatre of pugilism with loud huzzas, when he has pushed his unequal antagonist on some unresisting spot; which qualified the proud Roman to project the coit, or throw the javelin; the alert Greek, covered with sweat and dust, to carry off the prize in the gymnastic circles; or brawny American to turn, in coarse exultation, from his fallen competitor.

The doctrine of the circular muscles is new; I am not prepared to receive or admit it. I believe it to be

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hard-working woman of the city, and the laborious of the country, are the civilized; and the delicate, *refined* lady of the city is the uncivilized woman. Brydone certainly did not add to the facility of birth with the Sicilian women, that they were also "savages." In the Museum, all the advantages are with the lady of the city. In the essay, she has lost every thing "by civilization and refinement." See p. 43, &c.

" In lingering labours, when the parts are *rigid*, if the patient is of a plethoric habit, with quick strong pulse," says Smellie, " the contrary method (opposed to cordials) is to be used, such as *venesection*, antiphlogistic medicines[*]," &c. Here is the doctrine recognized by old Smellie, an unfashionable writer it is true, in all its principles. He advises venesection in rigidity of the softer parts. For what purpose? Surely " to dispose them to dilate, to unfold" before the head of the child, to prevent or cure, as the case might be, inflammation. He could not, nor could any other rational man, suggest to us blood-letting, merely for the ceremony of the thing. He must have intended it to be in its extent commensurate with the circumstances of the case.

Thus, where Baudelocque remarks, that " a[†] bleeding made to the purpose (a happy expression), with emollient, mucilaginous injections, the warm-bath, &c., * * * * can relax the *rigidity* of the neck of the womb, and render its dilatation easy." He does not restrict us to any given quantity. There is, however, but one thing to be understood. The bleeding is to be " *à propos*;" suited to the circumstances of the case, as to extent, and done in time. What reasonable man could have said more?

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[*] Smellie, vol. I, p. 221.

[†] " *Une saignée faite à propos*, des injections émolientes et mucilagineuses, les bains * * * * pour *affoiblir la roideur du col de la matrice, et en faciliter l'ouverture*." Tom. I, par. 1145. *Baudelocque*.

In the same strain, we observe the opinions of Denman to run on "fever and local inflammation" (rigidity with inflammation). This excellent accoucheur says, that "It does not seem necessary to bleed every patient on the accession of labour, and for some it would be highly improper. But whenever the feverish symptoms become violent, it (blood-letting) is, I believe, *universally* proper; the quantity of blood taken away, being suited to the degree of fever, and to the constitution of the patient*." If the fever arises from local inflammation, as we understand from the head of the section, and as there must be *pain* where there is local inflammation producing fever, he assuredly prescribed blood-letting "for the diminishing of pain."

A little farther on, a few pages only, the same judicious man adds: "For the prevention of such difficulties as may attend the first act of parturition, in those who are advanced in age, we have been advised to order frequent and small bleedings towards the conclusion of pregnancy." For what is this advice? For no other purpose that I can devise, than "to dispose the rigid os uteri to dilate, and the external parts to unfold."

To those already adduced, I will add Hamilton, who tells us, that in "crampish spasms of the belly," or viscera within the belly, we are to have recourse "to *venesection*, glysters," &c. And in the subsequent paragraph he subjoins, that "inflammatory diathesis, in young subjects of strong rigid fibres, and plethoric habits, must be obviated by *venesection*, repeated glysters*," &c.

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* Denman, vol. II, p. 50, 59.

It will now appear that blood-letting has been used, by those writers that are well entitled to a place in the library of every medical gentleman, "for diminishing pain, disposing the os uteri to dilate, the external parts to unfold," &c.; and that these writers recognize and enforce the doctrine of blood-letting in its fullest extent, so far as rational men can go. The doctrine, with its principles, is all that can be contended for. The application must rest with the judgment and discretion of the practising accoucheur.

In the quotation of the 1960th paragraph of Baudelocque, there is great injustice done the learned Frenchman, as it is cited in the thesis. Why were the "proper methods," so hastily passed over? Are they undeserving of notice? What are those "proper methods," that are to have place before the accoucheur is to think of the cutting instrument? Turn to paragraph 1145, and you will see it to be nothing less than what the learned lecturer claims as his discovery, "blood-letting," &c.

It may not be amiss to remark, that there are two states of unyielding os uteri: the one from an inflammatory disposition, the other from a cartilaginous state. How the lancet will succeed in real cartilage, we are scarcely prepared to determine. The bistoury should be the last thing thought on by the accoucheur. This is Baudelocque's doctrine.

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* Hamilton, p. 156.

That, by a loss of blood to any extent whatever, the practitioner will prevent the disease called the "swelling of the lower limb of the lying-in woman," Dr. Dewees will not again assert, when he shall have taken a better and nearer view of that disease. It is as common in feeble, exhausted habits, as in robust, plethoric ones. I write from observation. See also Charles White, of Manchester, Denman, &c.

Of cicatrices I have no experience; but I can have no very exalted opinion of that remedy, which, after several repetitions, leaves the case to be relieved by the forceps. The lancet would be proper without question, so far as irritation and inflammation might be threatened from the effects of long-continued, violent throes.

From what has been premised, I deduce the following conclusions:

1. That pregnancy, whether with the savage or civilized woman, is a state of nature, and parturition an act of nature, but subject to interruption by disease.

2. That the doctrine of pregnancy being a disease is inconsistent with the order of nature, at variance with common observation, in itself indefensible, and of the school of Boerhaave.

3. That the rigid os uteri, with or without inflammation, is a rare occurrence, there not being more than ten cases in a thousand of ordinary practice, where the accoucheur would be called on for the aid of his art.

4. That blood-letting has been considered and prescribed as a remedy, "for diminishing pain, disposing the os uteri to dilate, the external parts to unfold," &c., by Smellie, by Denman, by Hamilton, and by Baudelocque*.

I will close this letter, with a short admonition to young practitioners. It would be well for gentlemen, when they enter the room of a lying-in patient, to carry with them, not their lancet, for I have understood that those who wear the sword are apt imprudently to use the sword, but a good stock of composure and patience, and confidence in the resources and abilities of nature; and, above all, a sound, discriminating, well-instructed judgment. Thus provided, I think that I can assure them, they will seldom leave the room with feelings ungrateful to themselves, or a reputation disadvantageous to the art of the accoucheur.

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* "I am aware that this remedy (blood-letting) is not a new one to a certain degree; but, I believe it has never yet been advised nor used in the copious manner, nor regulated by the morbid phenomena" (rigidity, local inflammation, unyielding disposition of the soft parts, &c.) "of child-bearing, which have been mentioned." *Rush. Rep.* vol. VI, p. 20.

"This remedy (blood-letting) is by no means a new one, in labour; but employed for the express purpose of diminishing pain, and subduing the various species of rigidity just spoken of, and carried to an extent that will ensure these objects, that is, diminishing pain, disposing the os uteri to dilate, the external parts to unfold, &c., originated, as far as I am acquainted, with *myself*." *Dewees. Essay*, p. 62.

If, sir, you will compare these two paragraphs, I think you will coincide in opinion with me, that, were they in different languages, the one might, with the strictest justice, be considered as a free translation of the other. Did Dr. Dewees ever read Dr. Rush?

In my next speculation, I shall confine my pen to the mechanism of labour. I shall endeavour to demonstrate, that if the lancet will relax the softer parts through which the child is to pass, it will also reduce the efficiency of the throes, necessary to the detrusion of the child; and, that where one ordinary case will be benefited, one hundred will be injured, by the lancet.

I am yours, &c.,
JOHN B. DAVIDGE.

Baltimore, *March* 25*th*, 1807.

X. *Some Account of the Epidemic Diseases which prevail at Mays-Lick, in Kentucky. In a letter to the* EDITOR, *from Dr.* DANIEL DRAKE.

TO fill up this sheet, I will copy from my common-place-book some observations on the topography and diseases of that part of Kentucky in which I lived, after my return from Philadelphia, till about three months ago. The village in which I lived is 12 miles from the Ohio. It is remote from any marsh, pond, or considerable stream of water; the land is fertile and rolling; the springs, though numerous, are most of them transient. The inhabitants of this little place, and the surrounding country, had, for many years, enjoyed a high degree of health. An epidemic, till last year, was almost unknown to them; but it formed a sad reverse. A fever of the typhous or typhoid kind, attended with bilious symptoms, prevailed in every house in the village, and in many in its vicinity. I shall not attempt a history of it, but will merely give you a few of the results of my observations on it.

1. The majority were attacked between the 1st and 10th or 15th of October, but several both before and afterwards.

2. Sometimes typhous symptoms appeared at the commencement, but in most cases it was at the beginning somewhat inflammatory.

3. In November and December it was attended with more typhous symptoms than in September and October.

4. Bilious symptoms were present in almost every instance. In some cases, large quantities of bile were discharged.

5. It was certainly not infectious, for visitors did not take it, and yet, in two families, it gradually attacked almost every member of them.

6. The tongue, in almost every case, was covered with numerous small papillæ, which were more obvious to the sight than touch. They occurred whether the tongue were dry or moist, blackish or whitish. They also occurred in every case of indisposition which I witnessed that autumn, from whatever cause.

7. Either during the formation, progress, decline, or convalescence of this fever, a diarrhœa uniformly occurred.

8. Pains in the extremities were very common. They were sometimes periodical. They generally occurred towards the decline of the fever, and, in almost every case, indicated a favourable termination. They discovered that the sensibility of the system was not exhausted. In a case that terminated fatally, no pain attended through the whole course of the fever, neither could any be excited by blisters and sinapisms. When these pains were violent, they were most effectually relieved by blisters over the part affected, and by sweating.

9. Boils and other abscesses were extremely common: they were favourable appearances. They generally occurred about the termination of the disease.

10. When a free determination to the skin, either spontaneously, or by the use of sudorific medicines, took place, the disease generally terminated favourably.

11. In most cases, quotidian intermissions, or remissions, were observable.

d. A worm which destroys the unripe ears of Indian corn. This worm is seen every summer, but was uncommonly numerous and destructive last summer. In some fields scarcely an ear was unaffected.

I do not pretend to see any connection, after the manner of cause and effect, between these facts and our little epidemic, but, as I cannot assign any cause for it, and as these occurrences were all cotemporary, I thought them worth mentioning. Evils often seem gregarious.

I am yours, &c.,
DANIEL DRAKE.
Cincinnati, Ohio, July 22d, 1807.

XI. *Case of Tetanus, cured by Injections of Tobacco, &c. In a letter to the* EDITOR, *from* P. K. ROGERS, *M. D., of Philadelphia.*

DEAR SIR,

I TAKE pleasure in transmitting to you the following particulars, respecting the case of tetanus, which I mentioned at our late conversation.

March 7th, at nine o'clock in the evening, I was requested to visit Miss K. H., about twenty years of age, who was in a state of uncommon agony. Her mother, subject to epilepsy, was seized with a fit a few hours before: and, while Miss H. stood by her unfortunate parent, a witness to her suffering, the chimney of the apartment took fire. Miss H., from excessive emotion, or alarm, became faint and speechless. Her sudden paleness, trembling, and hurried respiration, were soon succeeded by coldness of the extremities, some flushing of the countenance, pain, and spasm. The painful sensations increasing in violence, she screamed, groaned, and muttered, but could not articulate.

When I entered the apartment, I found her in the state of suffering just mentioned. She had been bled, and was supported in a chair with her feet in warm water. The pulse, at this moment, was fluttering, irregular, and, I think, as small and frequent as that of a new-born infant. I was disposed to think the abstraction of blood had been of hurtful influence. The pains, by which she was most agonized, passed from the cartilago ensiformis, and from the extremities of the false ribs, to the back, and seemed to be connected with spasm of the diaphragm. The seat of pain, in connection with other circumstances, led me to predict the establishment of a formidable tetanic affection.

Sinapisms were immediately applied to her wrists, and *laudanum*, and the *balsam of Peru*, were administered in liberal doses, without affording any evident relief, though the pulse was rendered stronger, more full, and less frequent.

March 8th, morning. The neck was stiff; the head immoveable, inclining backward; the extremities sometimes moderately rigid, sometimes feebly convulsed, and occasionally relaxed; the countenance was flushed, the heat of the body above the healthy state, and the pulse active.

A dose of castor-oil, assisted by a purgative enema, procured a plentiful alvine evacuation, nearly of the natural appearance.

Evening. The spasmodic action became more vehement; the limbs and back were affected with pain; the distressing traction at the scrobiculis cordis increased. She could not swallow; the mouth was fixed open, and the jaws immoveable. Opisthotonic spasm, general rigidity, and convulsions, recurred by turns.

The warm-bath procured transient relief, enabling the attendants to administer enemata with laudanum at intervals. She passed an easier night, probably from these measures; but could not sleep. She spoke a few words during the night, and took some drink.

March 9th, morning. The spasms returned with still greater violence; skin warmer than natural; pulse active; deglutition again stopped; jaws locked.

I questioned the propriety of employing the warm-bath in this state; I likewise thought the cold-bath precarious; and the impossibility of giving medicine by the mouth, forced me to deliberate on other measures. I conceived that vomiting, if it could be induced, would mitigate the violence of the general spasms; and it occurred to me, that tobacco, while it would induce vomiting, might prove useful by a more general influence on the system. I therefore determined to give it a trial. I did not then know, that tobacco had before been employed in tetanus by any one. And accordingly I mentioned to my pupils, Mr. G. and Mr. R., that I believed it to be a new expedient*. These gentlemen frequently visited Miss H., and paid particular attention to the treatment that was instituted.

A mash of tobacco leaves was applied to the scrobiculis cordis, but in six hours no obvious effect resulted. On removing the tobacco, the warm bath was repeated; it gave less relief than before.

Evening. One dram of tobacco was boiled in six ounces of water, and the decoction employed as an enema. Vomiting and general relaxation instantly took place; the vomiting proved remarkably severe; articulation and deglutition were restored. She enjoyed some sleep in the night, and remained free from spasm till morning.

March 10th, morning. On entering the room, I witnessed a violent state of rigidity and spasm, in the shape of opisthotonos: in this condition it was impossible to repeat the enema. As soon, however, as a partial relaxation permitted, the enema of tobacco was exhibited in the same dose as before; its effects were instantaneous; the vomiting was still more violent than in the former instance, and the removal of spasm equally sudden and general. There was no purgative operation from the enema.

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* You have since informed me of cases in which it had been previously used, and also of your own attention to the subject in your lectures.

We will suppose the woman to be entering on her ninth month, as, until the first ten days of that shall have elapsed, there is no symptom of approaching labour. Within about three weeks of the period of actual parturition, the woman begins to perceive a subsidence in the epigastric and hypochondriac regions. This subsidence is not a mere chimerical deception of the sense of the woman; it is an actual change, and becomes more and more the subject of regard, until the period of confinement. This subsidence has been a source of serious contemplation to the woman; she has mistaken it as indicative of the death and waste of her infant. With some accoucheurs it has been a subject of idle animadversion, being construed into the collection and dispersion of wind in the stomach and bowels; whilst with others, better trained in the school of observation and experience, it has constituted a part of the uniform design of nature.

To those who are acquainted with the regular evolution of the gravid uterus, I need scarcely remark, that this evolution is in divisions; that of these, the fundus may be considered the first division, and is the first in evolving; the corpus the second, and has the second place in suiting itself to the increased dimensions of the child; and the cervix as the third, and the last in yielding to the growth of the contained fœtus. This last division does not lend its aid until towards the eighth month, from which time it in regular progression evolves to meet the expanding dimensions of the fœtus.

When this is nearly completed, the child actually occupies a lower part of the pelvic region than during the sixth and seventh months; and, about the completion of this evolution of the neck of the uterus, the evolving action of the abdominal muscles begins to change, and give place to the powers of expulsion resident in these muscles, and the longitudinal muscular fibres of the uterus. The uterus, from the interest it has in the general sympathies of the system at large, commands into its private services the aid of the neighbouring muscles. By an absolute impress of foreign agency, in co-operation with its own powers, it begins and carries on the function of expulsion; and, in the preparation of these muscles for more serious action, we discover the first cause of the first premonitory sign, the subsidence of the abdomen, of approaching labour.

At full time, when nine months shall have completed their round, the throes of child-birth come on. They may fortuitously be provoked into untimely action, and produce abortion, or miscarriage; but their legitimate term is generally conceded to be that of nine calendar months. If it were necessary, in addition to what I have said in my former letter on this subject, to adduce evidence in attestation of the fixedness and uniformity of the term of labour, I would invite your attention to the highly interesting fact, that, if a fœtus be extra-uterine, the throes, at full time, will come on with the same force and regularity as if the fœtus were within the uterus. Here we have another argument strongly militating against the preposterous doctrine, that "pregnancy and parturition are grades of disease." The throes to expel an extra-uterine fœtus will not be argued to be derived from the stimulus of mechanical distention operating on the accumulated excitability of the uterus. We assuredly deduce these throes from the laws of the constitution of the mother; for, in this case, the child is not within the womb, and, of consequence, can by no luxuriancy of fancy be supposed to excite into action that organ.

The term proper to the maturity of the child being elapsed, we discover farther and more decisive marks of labour to present themselves. But, before I proceed to the physical properties of the womb, I must say something on the moral necessity of pain.

What I mean by the moral necessity of pain, it may be proper, in a succinct manner, to explain. Notwithstanding the general sympathies of the body may, and to my apprehension do, grow out of the common constitution and economy of body, and would, without the transgression of man, have been attended by pleasureable sensations in the various operations of which they are the source, yet I find no difficulty to conceive that those sympathies, in their laws the same, may be accompanied by unpleasureable sensations in the functions or conditions to which they give origin.

In the first period of conception, upon the supposition that Eve had remained in her original paradisaical estate, I can conceive that all the associated actions would have afforded pleasure; that the very associated action of the stomach, which, in the present condition of woman, causes distress, could, under the state alluded to, have produced happiness.

The body has been, for some time previous to conception, accustomed to have separated from its common circulating mass a peculiar liquor to a given quantity. Upon conception in the general, this particular excretion (the menses) ceases to be thrown off; the body no longer, from its altered condition, throws off this excrementitious fluid, no longer can it need the same supply of aliment; and hence is the general inappetency of pregnant women for food during the first two or three months, until, by the bulk of the child, greater demands shall be made on the general constitution, and, of course, on the stomach.

From this I wish it to be understood, that the sickness and uneasiness of breeding, as it is usually phrased, is a moral consequence, while the inappetency for food is, from a law of the female habit, under the controul of ovarial influence. Therefore, when we speak of the diseases of pregnancy, I hope that it will be always conceived, that we do not have allusion to this constitutional association between parts, nor to the distress consequent on this associated action, which, in itself, in a higher or lower degree, howsoever opposed by human skill, is inseparable from the present condition of humanity, and forms one among the many irrefutable facts on which rests the authenticity of the bible.

CASTELLIO'S VERSION.

"Deinde ad mulierem: Ego te multis doloribus, inquit, damnisque afficiam, tu natos *cum dolore* paries." *Gen.* cap. iii. v. 16.

corporeal sensation. It would have been great gratification to all biblical scholars, had the Doctor dilated a little more on the general sense of the text, and given us a full commentary on "I will greatly multiply thy sorrow and thy *conception;* in sorrow shalt thou bring forth children." Perhaps it would have appeared, in the course of his discourse, that woman, in consequence of her defection, had become more prolific; for to multiply "*conception,*" is without doubt to increase fertility.

What can be inferred from "I will greatly multiply thy conception," &c.? Nothing, but that the whole is incorrect, and a stupid blunder of the translator. The Doctor says, that it was not a punishment for transgression, but the mere result of accident or civilization. And yet the very version, and every other version, on which he offers his annotation, expressly declares, "because thou hast done this."

The tonic and clonic powers of the uterus, together with the contractions of the abdominal muscles and diaphragm, are the only actions alleged and recognized, by the concurrent authority of accoucheurs, as contributing their agency to the expulsion of a child from the gravid uterus. If there be others, I am unacquaint- with them. All voluntary effort is both useless and improper.

THE TONIC POWER.

It appears to be understood among accoucheurs, yet not with the full and expressed consent of anatomy, that there is in the uterus a double set of fibres; the one circular, the other longitudinal. The circular fibres are diffused equally throughout the uterus; its fundus, its corpus, its cervix. In these fibres is resident the tonic or elastic power. It perpetually urges the gravid uterus to recover upon itself, as the French would speak; and no sooner do the throes, co-operating with the circular fibres of the fundus and corpus uteri, discharge the liquor amnii, than the whole of the walls of the uterus, the circular fibres of the cervix, with those of the other parts, close about the child, and in this state would the hapless fœtus, immured within its narrow habitation, remain, until death and putrefaction should waste it away, were not the revival and reiteration of the throes to impel it to the world.

The circular fibres of the cervix are forced into obedience by the superior power of the throes, of which I shall presently speak. The tonic or elastic power never ceases to act when once called on by the laws of the constitution, and provoked by a source of distension within the cavity of the uterus; and no sooner is the child expelled with its appendages, than this tonic power gathers the uterus up nearly to its original dimensions. Of this tonic action the woman has no consciousness: it perpetually urges, yet without pain.

"1. That the circular fibres may contract to almost any degree, without being attended with pain. 2. That their contraction alone, however violent, does not forward the child. 3. That they do not possess the power of alternate contraction in the same degree as the longitudinal fibres; and, that they may exert this power, it

I shall now proceed to the examination of that philosophy which instructs in the abstraction of blood from a general system of vessels, in order to relax a particular set only. This general system, we may observe, goes off from the same heart; is mutually in its parts dependent, and between which parts there is a constant reciprocation of good offices, or injuries, with a continued, uninterrupted circulation of the same common mass of fluid. The circulation through this general system being continuous, and, as it were, in a circle, any quantity of blood abstracted must immediately, and in the ratio of the diameter of each vessel, influence each and every part of the general whole equally.

If any loss of blood will relax the os uteri, vagina, and loca muliebria* (I speak of these parts in their ordinary state, free from inflammation, rigidity, or spasm, such as in ninety-nine of a hundred labours will be the case), will it not likewise prostrate, in a higher or lower degree, the expulsive forces of the uterus, abdominal muscles, and diaphragm, and equally in their relation? It must, unquestionably, and leave the resistance to be overcome, and the powers of expulsion, in the same relation to each other that they were previously to the use of the lancet.

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* Loci muliebres, vel loca muliebria, are by some classic writers preferred, when they speak of the genital parts of the human female, while they rather restrict the expression pudenda to the genital parts of the female brute. But, perhaps, they are equally proper, and may be used according to the taste or choice of the writer.

Whatever be the quantity of blood, its relative effects must be the same. If even the woman be reduced to syncope, the child remains in the womb; for where there is syncope, there can be no clonic action, and the child will not be born until the woman shall be restored to her powers.

During utero-gestation, if a woman has incautiously, by excessive exercise, roused the heart and arteries, or the circulation has been accelerated by intellectual emotions, or a fever has been kindled up, the accoucheur abstracts blood: but for what? to relax the parts through which the child is to pass in its birth? by no means. His object is to bring the body more or less to a state of relaxation or syncope, and thus to lower the powers of expulsion, to quiet the parturient throes, and save his patient from miscarriage. If, then, during utero-gestation, we are to prevent premature birth by the abstraction of blood, why, and how, are we to facilitate parturition by the lancet at full time? Will not the effects generally be the same? Undoubtedly so.

We think correctly, when we believe that nature has as wisely ordered the relation of her powers in the act of parturition, as she has regulated the graduation of the stimulus of the blood to the irritability of the heart. Not indeed to a mathematical balance, but, according to her own liberal scheme, admitting of some extravagance and aberration. Therefore, every light disease, or improper interference of art, cannot throw her from her design.

Any given quantity of blood, whether from the arm or uterus, should, to my understanding, affect the general system, and, of consequence, every part similarly; and a relaxation of the body, or complete syncope, must be equal, in what manner soever induced. Hence I infer, that no woman should die from flooding; at least without being first disburthened of her load; nor indeed could she possibly die of flooding before the birth of her child, if the doctrine, embraced by the principles inculcated by the friends of syncope being the immediate path to easy and rapid labour, were founded in the laws which regulate labour.

I write from observation; I am an accoucheur, and have witnessed the effects of bleeding in ordinary labours: it is true, not in my own patients, except such as have become so secondarily. As to labours attended by morbid phenomena, I have already spoken of them in my first letter. The use of the lancet, in such, is recommended and enforced almost by every writer on general midwifery, for fifty or a hundred years back. My present letter only relates to ordinary labour, and neither of them to preternatural or laborious labour.

When we talk of relaxing the vagina and external parts by the lancet, in common labour, we use a sort of language too mechanical, and in no respect applicable to the affair of which we speak. This relaxation, as we are pleased to term it, of the soft parts, is a peculiar and inscrutable evolution or developement, which may suggest to us a high veneration for that wisdom which ordered the plan of the parts and their functions; and certainly we may be content with the knowledge of the fact, without entangling ourselves in useless researches after its physiology; researches that will ever be unsuccessful, and will only serve to teach us humility.

At best, the science of physiology is a science of conjecture. We know the organs, and we learn the result of their operations; but of the causation, the physiology of the thing, we know nothing, whether we speak of the uterus, the liver, the brain, or any other organ.

This same unintelligible, mechanical language has been as fruitlessly applied to the explication of the evolution of the gravid uterus. Like the gravid uterus, the vagina and external parts evolve by the particular physical properties of the parts themselves. These properties or laws are a part of the wonderful economy of nature; they are called into service by powers of the female constitution, and should have taught professors that parturition is not a "grade of disease." So soon as disease fully takes place, this natural evolution ceases, and art must open its resources.

The remainder of this paper is, unavoidably, delayed, for the present.

XIII. *Thoughts on the Exercises which have occurred at the Camp-Meetings in the western parts of our country. Communicated to the* EDITOR, *by Mr.* WILLIAM YOUNG, *of Delaware.*

IN the *Medical and Physical Journal*, part 1, vol. II, Dr. Robertson, of Nashville, denominates the exercises which have occurred at the camp-meetings in Tennessee, &c., an *Epidemic Chorea;* and, though not fond of disquisitions of this sort, I beg leave to offer a few observations in reply, and hope to disprove Dr. Robertson's position.

The cogitations of conscience are generally hidden and inscrutable, but extraordinary impulses on the moral faculty are frequently manifested to observation. It is a commonly received maxim, that every operation of mind, and every act relating to religious worship should be treated with caution and liberality; but an attempt to explain such extraordinary exercises of mind, and gesticulations of body, as occurred in this case, is privileged by christian charity itself.

In considering this exercise as a bodily disease, Dr. Robertson must have overlooked, or not examined, the physiology of the mind. The ancient nosologists were often misled by mistaking symptoms for original affections, and an apparent similarity of symptoms formed the relationship of disease, and names were applied without regard to the real nature or seat of the disorder: hence, an inflammation of the meninges of the brain was termed *head-pleurisy*, and thus, also, the agitations of religious exercise are called St. Vitus's dance. The misapplication of terms in medicine was a fruitful source of error in the dark ages of the world, and it was hoped that physicians had absolved themselves from the tyranny of custom; but Dr. R. has either misnamed this affection, or mistaken the influence of a convulsive operation of the moral faculty upon the system for an idiopathic bodily disease.

The influence of physical causes upon the intellectual faculties, and especially upon the moral faculty, is too well known to admit of a single doubt, and the immediate operation of the feelings and passions of the mind upon the moral faculty have given rise to all those gesticulations of body, which have astonished a dispassionate public, and which Mr. Wilkinson has judiciously described.

From Mr. Wilkinson's history it is evident, that feeling had a large share in producing the exercise; and the fact of its not having occurred among the Seceders, who are numerous in the same district, is a strong evidence in support of this position. The latter confine themselves to the use of the old Psalms, which are serious and doctrinal, and also to the old tunes, which are slow and plaintive; while the others use hymns of the most empassioned kind, and accompanied with melancholy music, of a quick movement.

"The effects of music upon the moral faculty," says Dr. Rush, "have been felt and recorded in every country. Hence we are able to discover the vices and virtues of different nations by their tunes, as certainly as by their laws. The effects of music, when simply mechanical, upon the passions, are powerful and extensive. But it remains yet to determine the degrees of moral ecstacy that may be produced by an attack upon the ear, the reason, and the moral principle at the same time, by the combined powers of music and eloquence.

"The eloquence of the pulpit is nearly allied to music, in its effects upon the moral faculty. There must be a defect of eloquence in a preacher, who, with the sources for oratory which are contained in the Old and New Testaments, does not produce, in every man who hears him, at least a temporary love of virtue. I grant that the powers of eloquence cannot change men into christians, but it certainly possesses the power of changing brutes into men. Could the eloquence of the stage be properly directed, it is impossible to conceive the extent of its mechanical effects upon morals. The language and imagery of a Shakspeare, upon moral and religious subjects, poured upon the passions and the senses, in all the beauty and variety of dramatic representation, who could resist or describe their effects?"

To the combined influence of music and eloquence is added the excitement of camp-meetings, in which the sympathy of association conspires to give a sudden impulse to the moral faculty, which it can neither resist nor confine within ordinary limits; and the violent and irregular excitement produces a proportionate re-action upon the nervous system, and consequent convulsive motions of body. These motions are of a mixed kind, voluntary and involuntary. Sensation is not destroyed, nor the will suspended, but the inordinate re-action of the moral faculty upon the common sensorium, with equal suddenness and force, induces confused exercises of mind and mixed motions of body.

The stimulus of more common passions, as those of patriotism, of love, of social joy or grief, not unfrequently produce the most exalted acts of virtue, and the most debasing examples of vice. Man is the creature of feeling; hence, in sacred writ, the heart of man is addressed as the seat of his affections, both virtuous and vicious; and the moral faculty is represented by "the light that lighteth every man that cometh into the world*."

A serious contemplation of the attributes of Deity gives rise to the most exalted sentiments of which the human mind is susceptible, and the force of religious excitement is oftentimes irresistible. Neither persecution nor famine could destroy it. Witness the christian martyrs, who suffered every torture which the evil genius of the age could invent, and were finally consumed at the stake, without evincing a single sensation of pain or regret; nay, who died exulting in the sacrifice of their lives, through an invincible sense of devotion. Mahometans and Pagans also endure many privations in their systems of devotion, and thousands of them have surrendered their lives to the enemies of their creed. If the revealed system of christianity be true, mahometanism must be a delusion; and if an improper exercise of the moral faculty will excite men to endure torture and death, surely a sudden excitement of the same faculty, by the glorious realities of the gospel; a pathetic description of the bleeding hands and dying groans of an efficient Saviour; the exaltation and happiness of believers in time and eternity; and the endless miseries of the unbelieving in death, in judgment, and futurity, may reasonably be admitted to produce temporary *gesticulations* of body.

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* See Rush's Inquiries, vol. ii, p. 4.

From this cursory view of the operations of the moral faculty, I think it is evident, that the exercises in question were improperly denominated chorea sancti viti; neither are we authorized to believe them to be a special " visitation from the Deity." I, however, hope not to be accused of deteriorating this religious exercise; far, very far from this is my wish. I presume not to condemn the persons thus influenced, nor to detract from the sincerity of their devotion; but my wish is to remove the delusion of supposing it to be a bodily disease, and leave the intrinsic merits of the subject to Him, who " searcheth the hearts and trieth the reins of the children of men;" and who can direct the exercises of the synagogue and the *camp* to his own glory.

A critical attention to Mr. Wilkinson's description of the rise and progress clearly evinces the nature and form of this affection. " The paroxysms (says Mr. W.) seldom returned but during attendance on religious worship;" hence they were merely occasional.

"It has varied from the beginning, and has been almost infinitely different and varied in different persons, and even in the same individual."

Many of the gesticulations are "imitative of those actions which are common in domestic life, and chiefly peculiar to the female sex."

"Some of the leading characteristics of the exercise, on its first appearance, as it respected women, were, that they took it with a *convulsive agitation* of the breast, and with apparent difficulty of breathing, accompanied with lamentable cries and ejaculations; to all which succeeded what is called the *silent exercise.*"

The subjects of these exercises "have an uncontroulable desire of attending upon divine worship, particularly that of the *social kind;*" and a strong "desire that all others should be in the same situation with themselves."

Mr. W. considers all the movements of the affected as involuntary, but adds, "it is, however, equally evident, that numbers endeavour to excite and promote the exercise, among whom I may mention the principal of our clergy."

If we combine the varied forms of the exercise, the imitative actions of many, the lamentable cries and ejaculations of others, the general desire of social communion, and the acknowledged efforts of the clergy, into one view, and consider "sensibility as the avenue to the moral faculty," it will lead us to a knowledge of this singular affection. A propensity to imitation, arising from the sympathy of association, and the influence of society, in exciting passion and emotion, so universally affect mankind, that "he must be more or less than man, who kindles not in the common blaze" of tumultuous excitement.

The efforts of the clergy to excite and promote the exercise are avowed by Mr. W., and their powers of accomplishing the object must be admitted. Zeal, somewhat fervent, is certainly laudable in the preachers of the gospel, and the man of sensibility may not only become excited in the pulpit, but, if eloquent, or even declamatory, may impress the same sensations in his audience. Such were the powers of eloquence possessed by the famous Massillon, notwithstanding he read his sermons, "that he drew a whole audience, by an instantaneous impulse, upon their feet," in terrific expectation of the terrors of the last judgment being about to fall upon them. If a Parisian audience could be thus excited, how much more easily may the congregated thousands of a western camp, predisposed by the sympathies of association, be aroused to tumultuous exercise.

Declamation is considered an essential part of pulpit oratory, as the feelings and passions are the avenues to the understanding; but whether it be useful, or laudable, to carry the work upon the passions so far as is now practised, I presume not to determine, but leave this question to the ministers of the gospel, and the Master of congregations whom they serve.

The desire of exercised persons, that "all others should be in the same way with themselves," is perfectly natural. We find the same principle influencing all classes of society, and it was evinced by our mother Eve: when she had eaten of the fruit of knowledge, she desired Adam to partake with her, that he might become a co-partner in sensation, for "it was pleasant to her eyes." But when the voice of justice sounded in their ears, "Adam, where art thou?" we find the moral faculty was excited; they were ashamed; and, conscious of guilt, had hidden themselves among the trees of the garden.

The desire of the truly pious man, that others should participate in the mercies of redemption, is one of the strongest emotions of his soul: it is of heavenly origin, and in nature divine. We find that our Saviour "*wept*" over Jerusalem, and lamented her apostacy, in the most tender strains of compassion; St. Paul was almost willing to become accursed for his kinsmen after the flesh; Dives begged and beseeched father Abraham to send one from the dead, to warn his brethren of his misery and their approaching ruin; and love to the brethren is a cardinal point of the christian's faith; nay more, the joys of heaven will not be complete until "the congregation of the Saints" is accomplished.

To the clergy it more especially belongs to define the nature of this unusual affection; and if these cursory thoughts should excite their attention to the subject, the writer will be fully compensated. His sincere wish is to promote enquiry, and leave the decision to the dispassionate consideration of the public.

I am yours, &c.,
WILLIAM YOUNG.

February 20th, 1806.

XIV. *Miscellaneous Medical Facts and Observations. In a letter to the* EDITOR, *from Dr.* SAMUEL BROWN, *of New-Orleans.*

DEAR SIR,

FOR three years past, this city has escaped the ravages of the yellow-fever; and I can assure you, that the two last years have been as healthy as I have ever known any country to be, even in a northern climate. Consumptions and colds are rare: we seldom have intermittent-fevers. Indeed the remittent-fever is almost the only disease which can be considered as endemical. Hypochondriac and hysterical complaints are astonishingly rare. The almost universal use of claret, and the influence of a fine sky, produce habitual good spirits. Dyspepsia is so uncommon, that in twelve months I have not been consulted on a single case of it. I am inclined to think, that a voyage to this city would be one of the most salutary prescriptions for your hypochondriac patients, which, in most parts of the United-States, are a pest to physicians and to their families.

Mercury, as a cure of fever, is going fast into discredit here. I never used it to the extent of salivation in fever, but have seen much mischief result from it, whilst I thought its use very equivocal in every instance where I have known it employed. I hope a few years will consign this remedy to a humbler rank than that of a panacea.

I am daily more and more pleased with the effects of the tourniquet, when applied to the stomach for the cure of convulsions. I wish most sincerely that some of you would try its effects in your hospitals, where you have so many opportunities of experimenting upon inveterate disorders. In true epilepsy, I have not yet had occasion for using it, but, from its effects in hysteric convulsions, I should expect much benefit from it. I am even inclined to think, that in *habitual* intermittent-fevers, strong compression upon the stomach may prevent paroxysms which would resist the bark.

The natives of this country, and the negroes, cure the gonorrhœa by a decoction of the Palmetha (Litanie), and it is believed by them, that a decoction of the leaves and roots of the Nymphæa Nelumbo is capable of producing *temporary impotence*. The experiment is worth the trial.

I am yours, &c.,

SAMUEL BROWN.

New-Orleans, November 7th, 1807.

XV. *Some Account of a Journey to the Frozen-Sea, and of the Discovery of the Remains of a Mammoth. By M.* MICHAEL ADAMS, *of St. Petersburgh. Translated from the French.*

I SHOULD have reason to reproach myself were I to delay any longer the publication of a discovery in Zoology, which is so much the more interesting to be detailed, as it once more presents to our view a species of animal, the existence of which has been a subject of dispute among the most celebrated naturalists.

I was informed at Jakoutsk, by M. Popoff, who is at the head of the company of merchants of that town, that they had discovered, upon the shores of the Frozen-Sea, near the mouth of the river Lena, an animal of an extraordinary size: the flesh skin, and hair, were in good preservation, and it was supposed that the fossile production, known by the name of Mammoth-horns, must have belonged to some animal of this kind.

M. Popoff had, at the same time, the goodness to communicate the drawing and description of this animal; I thought proper to send both to the President of the Petersburgh Academy. The intelligence of this interesting discovery determined me to hasten my intended journey to the banks of the Lena, as far as the Frozen-Sea, and I was anxious to save these precious remains, which might, perhaps, otherwise be lost. My stay at Jakoutsk, therefore, only lasted a few days. I set out on the 7th of June, 1806, provided with some indispensible letters of recommendation, some of which were addressed to the servants of the government, and others to merchants, from whom I hoped to derive some advantages. On the 16th of June, I arrived in the small town of Schigarsk, and towards the end of the same month I reached Kumak-Surka: from this place I made an excursion, the express object of which was to discover the mammoth. And I shall now give a sketch of my journey.

The contrary winds, which lasted during the whole summer, retarded my departure from Kumak-Surka; this place was then inhabited by 40 or 50 Toungouse families of the Batouline race. Fishing was their ordinary occupation, and the extreme activity of these people filled me with admiration: the women, old men, and even children, laboured with indefatigable assiduity in laying up provisions for winter. The strongest went a-fishing, the less robust were occupied in cleaning and drying the fish. The whole shores were covered with scaffolding, and the cabins so filled with fish that we could scarcely enter them. An innocent gaiety reigned in every countenance, and all exhibited the utmost activity. The fishermen sang while casting their nets, and others were dancing the Charya, which is a dance peculiar to the country. I cannot sufficiently express the emotions of joy which I felt at the sight of these pleasing scenes.

I was convinced, while upon the spot, that the inhabitants of the North enjoy happiness even in the midst of the frozen regions.

But what astonished me still more, was the picturesque view of the opposite side of the Lena. This river, which is one of the largest in Siberia, majestically rolls its waters through the mountainous chain of Verschéjansk: it is here, near its mouth, entirely devoid of islands, and much narrower, deeper, and more rapid than in any place of its course. The mountains here appear in a great variety of forms; they are of a brilliant whiteness, and of a savage and horrid aspect; sometimes they represent immense columns which rise into the clouds, sometimes they resemble the ruins of ancient forts, and as if they were parts detached from the mutilated remains of grotesque and gigantic figures.

Further off, the horizon is terminated by a chain of high mountains, where eternal snow and ice dart back the rays of the sun.

These landscapes are of exquisite beauty; an expert draughtsman would look in vain for similar views in any other place of Siberia; and I am not astonished that the picturesque situation of Kumak-Surka should become the object of a national song, known solely on the shores of the Frozen-Sea. I reserve the communication of this curious article until I publish the detailed account of my journey.

The course of the winds having at last changed, I thought of pursuing my route, and I had my rein-deer brought across the river. Next day, at day-break, I set out, accompanied by a Toungouse chief, Ossip Shoumachoff, and by Bellkoff, a merchant of Schigansk, and attended by my huntsman, three Cossacs, and ten Toungouses.

The Toungouse chief was the first person who discovered the mammoth, and he was proprietor of the territory through which our route lay. Bellkoff, the merchant, had spent nearly his whole life on the shores of the Frozen-Sea. His zeal, and the details he procured me, have the strongest claims to my gratitude: I am even indebted to him for the preservation of my life at a moment of imminent danger.

At first I found great difficulty in sitting upon a reindeer; for, the saddle being attached by a girth of leather only, it was very insecure, and often occasioned me very disagreeable falls. Besides, my position was very inconvenient for want of stirrups, which are never used among the Toungouses.

On our route we traversed high and rugged mountains, valleys which followed the course of small rivulets, and parched and savage plains, where not a shrub was to be seen. After two days' travelling, we at last approached the shores of the Frozen-Sea. This place is called by the Toungouses Angardam, or terra firma. In order to attain the mammoth, it was necessary to traverse another isthmus, called Bykoffskoy-Mys, or Tumut. This isthmus, which projects into a spacious gulf, is to the right of the mouth of the Lena, and extends, as I was informed, from south-east to north-east for about 30 or 35 wersts*. Its name is probably derived from two points in the form of horns, which are at the north extremity of this promontory. The point upon the left hand, which the Russians call, by way of eminence, Bykoffskoy-Mys, on account of its greater extent, forms three vast gulfs, where we find some settlements of Jakouts; the opposite point, called Maustach, on account of the great quantity of floating wood found upon its shores, is one-half smaller; its shore is lower, and this district is completely inhabited. The distance from the one point to the other is estimated at four leagues and a half, or 45 wersts. Small hills form the higher part of the peninsula of Tumut; the remainder is occupied by lakes, and all the low grounds are marshy.

The principal lakes are: 1st, Chastirkoöl, which means the lake of geese; 2d, Kourilakoöl; 3d, Beulgeuniachtachkoöl, the lake of hillocks; 4th, Omoulachkoöl; 5th, Mougourdachkoöl, where a particular kind of salmon is found, called tchir; and, 6th, Bachofkoöl. The lake No. 4 is the largest, and No. 5 is the deepest of all. The lake No. 6 derives its name from two famous adventurers, Bachoff and Schalauroun, who spent a whole winter on its banks. We still see the ruins of a cabin in which they resided. The history of their unfortunate end is told by M. Sauer in his journal of Billings's expedition.

The isthmus we have mentioned is so narrow at some places that the sea may be seen on both sides.

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* Ten wersts are equal to six English geographical miles.

The rein-deer perform a periodical transmigration every year, during which they abandon these places, in order to proceed by the Frozen-Sea towards Borschaya and Uitjansk, and for this purpose they collect in large troops about autumn. In order to hunt these animals with greater prospect of success, the Toungouses have divided the peninsula into cantons, separated by palings. They frighten the deer by loud cries, which they utter all at once, by letting dogs loose at them, and by fans which they attach to the palings, and which are agitated by the wind. The terrified rein-deer throw themselves into the water, in order to reach some neighbouring island, where they are pursued and killed by the hunters.

On the third day of our journey, we pitched our tents a few hundred paces from the mammoth, upon a hillock called Kembisagashaeta, which signifies the stone with the broad side.

Schoumachoff related to me the history of the discovery of the mammoth, in nearly the following terms:

" The Toungouses, who are a wandering people, seldom remain long in one place. Those who live in the forests, often spend ten years and more in traversing the vast regions among the mountains: during this period they never visit their homes. Each family lives in an isolated state from the rest; the chief takes care of them, and knows no other society. If, after several years' absence, two friends meet by chance, they then mutually communicate their adventures, the various success of their hunting, and the quantity of peltry they have acquired. After having spent some days together, and consumed the little provisions they have, they separate cheerfully, charge each other with compliments for their respective friends, and leave it to chance to bring them together again. Such is the way of life of these innocent children of Nature. The Toungouses who inhabit the coast differ from the rest, in having more regularly built houses, and in assembling at certain seasons for fishing and hunting. In winter they inhabit cabins, built close to each other, so as to form small villages.

"It is to one of these annual excursions of the Toungouses that we are indebted for the discovery of the mammoth. Towards the end of August, when the fishing in the Lena is over, Schoumachoff is in the habit of going, along with his brothers, to the peninsula of Tumut, where they employ themselves in hunting, and where the fresh fish of the sea furnish them with wholesome and agreeable nourishment.

"In 1799, he had caused to be built, for his women, some cabins upon the shores of the lake Onroul; and he himself coasted along the sea-shore for the purpose of searching for some mammoth horns. One day he perceived, in the midst of a rock of ice, an unformed block, which did not at all resemble the floating pieces of wood usually found there. In order to examine it more closely, he clambered up the rock, and examined this new object all around; but he could not ascertain what it was. The year following he discovered, in the same spot, the carcase of a sea-cow (Trichecus Rosmarus). He perceived at the same time that the mass he had formerly seen was freer from the ice, and by the side of it he remarked two similar pieces, which he afterwards found were the feet of the mammoth. About the close of the next summer, the entire flank of the animal, and one of the tusks, had distinctly come out from under the ice. Upon his return to the shores of the lake Onroul, he communicated this extraordinary discovery to his wife and some of his friends; but their manner of regarding the subject overwhelmed him with grief. The old men related, on this occasion, that they had heard their forefathers say that a similar monster had formerly shown itself in the same peninsula, and that the whole family of the person who discovered it had become extinct in a very short time. The mammoth, in consequence of this, was unanimously regarded as auguring a future calamity, and the Toungouse chief felt so much inquietude from it, that he fell dangerously ill; but becoming well again, his first ideas suggested to him the profit he might gain by selling the tusks of this animal, which were of an extraordinary size and beauty. He therefore gave orders to conceal carefully the place where the mammoth was, and to remove all strangers from it, under various pretexts, charging, at the same time, some trusty dependents not to suffer any part of this treasure to be carried away.

" But the summer being colder and more windy than usual, kept the mammoth sunk in the ice, which scarcely melted all that season. At last, about the end of the fifth year afterwards, the ardent desires of Schoumachoff were happily accomplished: the ice which enclosed the mammoth having partly melted, the level became sloped, and this enormous mass, pushed forward by its own weight, fell over upon its side on a sand-bank. Of this two Toungouses were witnesses, who accompanied me in my journey. In the month of March, 1804, Schoumachoff came to his mammoth, and having got his horns cut off he changed them with Baltounoff, the merchant, for merchandize of the value of fifty roubles. On this occasion a drawing of the animal was made, but it was very incorrect; they described it with pointed ears, very small eyes, horses' hoofs, and a bristly mane along the whole of his back; so that the drawing represented something between a pig and an elephant."

Two years afterwards, being the seventh from the discovery of the mammoth, a fortunate circumstance occasioned my visit to these distant and desert regions, and I congratulate myself upon having it in my power to ascertain and verify a fact, which would otherwise be thought so improbable.

I found the mammoth still upon the same spot, but completely mutilated. The prejudices against it having been dissipated, because the Toungouse chief had recovered his health, the carcase of the mammoth might be approached without any obstacle: the proprietor was content with the profit he had already derived from it, and the Jakouts of the neighbourhood tore off the flesh, with which they fed their dogs. Ferocious animals,—white bears of the north pole, gluttons, wolves, and foxes,—preyed upon it also, and their burrows were seen in the neighbourhood. The skeleton, almost completely unfleshed, was entire, with the exception of one of the fore feet. The spondyle, from the head to the os coccygis, a shoulder-blade, the pelvis, and the remains of the three extremities, were still tightly attached by the nerves of the joints, and by strips of skin on the exterior side of the carcase. The head was covered with a dry skin; one of the ears, well preserved, was furnished with a tuft of bristles. All these parts must necessarily have suffered by a carriage of 11,000 wersts. The eyes, however, are preserved, and we can still distinguish the ball of the left eye. The tip of the under lip has been eaten away, and the upper part, being destroyed, exhibited the teeth. The brain was still within the cranium, but it appeared dry.

The parts least damaged are a fore foot and a hind one; they are covered with skin, and have still the sole attached. According to the assertion of the Toungouse chief, the animal had been so large and well fed, that its belly hung down below the knee joints. This mammoth is a male, with a long mane at his neck, but it has no tail and no trunk. The skin, three-fourths of which are in my possession, is of a deep grey, and covered with a reddish hair and black bristles. The humidity of the soil, where the animal has lain so long, has made the bristles lose some part of their elasticity. The entire carcase, the bones of which I collected upon the spot, is 4 archines and a half high by 7 long, from the tip of the nose to the coccyx*, without, however, comprehending the two horns, each of which is a toise and a half long, and both together weigh 10 pouds†. The head alone weighs eleven pouds and a half.

The principal object of my care was to separate the bones, to arrange them and place them in safety: this was done with the most scrupulous nicety, and I had the satisfaction of finding the other shoulder-blade, which lay in a hole. I afterwards caused the skin to be stripped from the side upon which the animal had lain; it was very well preserved. This skin was of such an extraordinary weight, that ten persons, who were employed to carry it to the sea-side, in order to stretch it on floating wood, moved it with great difficulty. After this operation I caused the ground to be dug in various places, in order to see if there were any bones around, but chiefly for the purpose of collecting all the bristles which the white bears might have trodden into the wet ground on devouring the flesh. This operation was attended with difficulty, as we wanted the necessary instruments for digging the ground; I succeeded, however, in procuring in this manner more than one poud weight of bristles. In a few days our labour was ended, and I found myself in possession of a treasure, which amply recompensed me for the fatigues and dangers of the journey, and even for the expences I had incurred.

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* An archine is a little more than two feet English measure.

† A poud is 40 pounds.

The place where I found the mammoth is about 60 paces distant from the shore; and from the fracture of the ice from which it slid it is about 100 paces distant. This fracture occupies the middle precisely between the two points of the isthmus, and is three wersts long; and, even in the place where the mammoth was, this rock has a perpendicular elevation of 30 or 40 toises. Its substance is a clear ice, but of a nauseous taste; it inclines towards the sea; its summit is covered with a bed of moss and friable earth half an archine in thickness. During the heat of the month of July, a part of this crust melts, but the other remains frozen.

Curiosity prompted me to ascend two other hillocks, equally distant from the sea; they were of the same composition, and also a little covered with moss. At intervals I saw pieces of wood of an enormous size, and of all the species produced in Siberia; and also mammoth horns in great quantities frozen between the fissures of the rocks. They appeared to be of an astonishing freshness.

It is as curious as it is difficult to explain how all these things are to be found collected here. The inhabitants of the coast call this kind of wood Adamsohina, and distinguish it from the floating wood, which, descending the great rivers of Siberia, falls into the ocean, and is afterwards heaped upon the shores of the Frozen-Sea. This last kind they call Noahsohina. I have seen, in great thaws, large pieces of earth detach themselves from the hillocks, mix with the water, and form thick and muddy torrents, which roll slowly towards the sea.

This earth forms in different places lumps, which sink in among the ice. The block of ice where the mammoth was found was from 35 to 40 toises high; and, according to the account of the Toungouses, the animal, when first discovered, was seven toises from the surface of the ice.

The whole shore was, as it were, covered with the most variegated and beautiful plants produced on the shores of the Frozen Sea; but they were only two inches high. Around the carcase we saw a multitude of other plants, such as the Cineraria aquatica, and some species of Pedicularis, not yet known in natural history.

While waiting for the boats from Terra Firma, for which I had sent some Cossacs, we exerted all our endeavours to erect a monument to perpetuate the memory of this discovery and of my visit. We raised, according to the custom of these countries, two crosses with analogous inscriptions. The one was upon the rock of ice, 40 paces from the shelf from which this mammoth had slid, and the other was upon the very spot where we found it. Each of these crosses is 6 French toises high, and constructed in a manner solid enough to brave the severity of many ages. The Toungouses have given to the one the name of the Cross of the Ambassador, and to the other that of the Cross of the Mammoth. The eminence itself received the name of Selichaëta, or Mammoth-mountain. This last will, perhaps, some day or other, afford some traveller the means of calculating, with sufficient precision, how much the mountains of ice lose annua' [illegible] ir primitive height.

I made two additional excursions, for the purpose of acquiring some more precise notions upon the nature of this peninsula, and my discoveries in zoology and botany perfectly answered my expectations. I found a great quantity of amber upon the shores; but in no piece whatever could I discover the least trace of any marine production. I should, perhaps, attribute this to the proximity of the river, and perhaps also to the depth of the sea, or abruptness of the shore. I had occasion to examine more closely the effects of the flux and reflux: this has escaped M. Sauer, who saw nothing of it at the mouth of the Colima.

Our Cossacs not having arrived in time with the boat, I was obliged to return to the continent with my reindeer, without waiting for them. The vessel, in the mean time, had cast anchor in the bay of Borchaya, three hundred wersts from the isthmus where I was. We arrived, without any accident, after a journey of eight days. A week afterwards I had the satisfaction to see the mammoth arrive. Our first care was to separate, by boiling, the nerves and flesh from the bones; the skeleton was then packed, and placed at the bottom of the hold. When we arrived at Jakoutsk, I had the good fortune to purchase the tusks of the mammoth; and thence I dispatched the whole for St. Petersburgh.

A question of some magnitude remains to be resolved:—Are the mammoth and elephant animals of the same species, as asserted by Buffon, Pallas, Isbrand Ides, Gmelin, and, above all, Daubenton? Or should we, in preference, rely upon the opinion of M.

who asserts that the mammoth occupies the second place among the extinct species of animals? As I do not intend, in this place, to make an exact comparison of the skeletons of a mammoth and an elephant, I shall content myself with relating here some characteristic marks which distinguish the two species: I reserve for a particular memoir some more detailed observations upon this subject. I shall here recapitulate the motives which induced me to adopt the opinion of M. Cuvier.

1. If the writers whom I have mentioned have actually made, as I suppose, zootomical comparisons, they have been able to do so very incompletely, and upon detached pieces; for neither the head, nor the whole vertebræ, nor the feet of the mammoth covered with flesh and hair, and furnished with the sole, have ever yet been examined, when collected together, by any writer.

The presence of the coccyx, which finishes the vertebral column, convinces me that the animal has had a very short and thick tail, like its feet: besides, its being every where covered with bristles induces me to think that they cannot be those of an ordinary elephant.

2. The teeth of the mammoth are harder, heavier, and more twisted in a different direction than the teeth of an elephant. Ivory-turners, who have wrought upon these two substances, say, that the mammoth's horn, by its colour and inferior density, differs considerably from ivory. I have seen some of them which formed in their curvature three-fourths of a circle; and, at

Jakoutsk, another of the length of two toises and a half, and which were an archine thick near the root, and weighed seven pouds. It is to be remarked, that the point of the tusks on the exterior side is always more or less worn down: this enables the inhabitants of the Frozen-Sea to distinguish the right from the left tusk.

The mammoth is covered with a very thick hair through the whole body, and has a long mane upon its neck. Even admitting that I doubted the stories of my travelling companions, it is nevertheless evident that the bristles of the length of an archine, which were also found upon the head, the ears, and the neck of the animal, must necessarily have belonged either to the mane or to the tail. Schoumachoff maintains that he never saw any trunk belonging to the animal, but it is probable that it was carried off by wild beasts; for it would be inconceiveable that the mammoth could eat with so small a snout, and with such enormous tusks, if we do not allow it to have had a trunk. The mammoth, according to these indications, would consequently belong to the elephant species, and M. Blumenbach, in his sysstem, actually calls it Elephas primævus.

To conclude:—The mammoth in my possession is quite different from that found near New-York, which, from the description given in the Journal called the *Museum des Wundervollen*, had carnivorous teeth*. M. Cuvier has proved, in a most satisfactory manner, that the mammoth is a particular species of antediluvian animals.

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* See Philosophical Magazine, vol. xiv, p. 162, 228, 332.

Another question still remains to be decided. Has the mammoth originally inhabited the countries of the pole, or those of the tropics? The thick hair with which this animal is covered seems to indicate that it belonged to the northern regions; to this it does not seem reasonable to start objections, although several writers have done so: but what remains inexplicable is, to ascertain, how came the mammoth to be buried in the ice? Perhaps the peninsula of Tumut has been slowly formed. In course of time a general inundation must have covered all the north part of the globe, and caused the death of this animal; which, after having floated for some time among the masses of ice, was finally driven by a gust of wind upon the sand-bank not far from the shore. The sea, upon afterwards retiring within its limits, must have buried the body of the mammoth. But of what use are all these hypotheses, even if they had a high degree of probability? How can we reconcile facts which seem so contrary? Two years ago similar relics were found in the environs of Kirengsk, upon the banks of the Lena, at a greater distance from the sea, and they had fallen into the bed of the river: others have been found in provinces further south from the Wolga; and they have been discovered in Germany and in Spain. These are just so many incontestable proofs of a general deluge. We must believe that the country of the mammoth was of immense extent: but I shall not at present prosecute inquiries which might lead us into a labyrinth of hypotheses: I shall merely add, that it appears incontestable to me that there has existed a world of a very ancient date; and Cuvier, without intending it, gives evident proofs of this in his system, by the twenty-four species of animals, the races of which are extinct. In the mean time, I beg the indulgence of the curious reader in the perusal of this essay. I purpose giving the osteology of the mammoth with all that precision which Camper has devoted to a similar work.

MICHAEL ADAMS*.

Petersburgh, *August* 20*th*, 1807.

XVI. *Questions relative to the American Elephantine Bones, &c. In a letter to the* EDITOR, *from Dr.* REIMARUS, *of Hamburgh.*

SIR,

THE discovery of the stomach of an Elephant, with its contents, which you mention in the *First Supplement of your Journal**, is certainly very interesting. However, you will allow, that we might desire some more particular circumstances.

1. Among the bones that lay around, were there observed the jaw-bones, or at least the *grinders*, which denote that particular species of Elephant in question, resembling carnivorous animals? For I have read, that, in

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* The author of the above essay offers his skeleton for sale, and means to employ the money it shall produce to him in a journey towards the north-pole, and particularly in visiting the island of Ljachow, or Sichow, which, from information received in his late journey, he believes to be a part of the continent of North-America.

* Article VI. Pages 22—35.

the same regions, there are likewise found teeth resembling the Siberian Mammoth's, or those of our living Asiatic elephants; so that, at first, one was not even sure, whether the tusks and those extraordinary grinders belonged to the same animal.

2. The state of preservation of the stomach might be more particularly described, as to its membranes, &c.; its figure, if this was still to be distinguished, its dimensions, its situation in respect to the adjacent bones, ribs, and so on.

You will excuse, dear Sir, my liberty in troubling you with these questions, as they arise from my desire of knowledge, and please to accept the assurances of my greatest esteem.

I. A. H. Reimarus.

Hamburgh, July 16th, 1806.

XVII. *Case of a Remarkable Diseased Uterus. In a Letter to the* Editor, *from* George Callaway, *M. D. of Virginia.*

IN the year 1795, Phillis, a negro woman, aged thirty, of delicate health, and several years after marriage to her second husband, discovered a tumour in the hypogastric region. It at first was only perceptible whilst she lay, on changing from one to the other side. At such times, she could plainly feel it fall to the depending side. She was troubled with sickness and retching. The tumour gradually increasing, without any disagreeable symptoms, save those which have just been mentioned, the patient began to discover it to mount over the pubes, and was delighted with the idea of being pregnant. In this opinion she was encouraged, notwithstanding her menstruations continued regularly. To heighten her suspicions, about the customary period of utero-gestation, she was attacked with pains, and called in the assistance of a midwife. She was pronounced to be pregnant, but labour not coming on, the midwife left her, saying, her time had not yet come. Unfortunately for the poor patient, her time never came, her pains entirely subsided, and she never after had occasion for the friendly assistance of her midwife.

The swelling continued to increase, without any inconvenience except what was occasioned by its bulk and weight. Her appetite increased, and she ate more than formerly. Her menstruations continued regular, but were extremely painful, and generally confined her to her bed, from two days to a week, and, towards the close of her life, to ten and twelve days.

By the year 1808, she had acquired such bulk, that, sitting on a seat of twelve or fourteen inches in height, her abdomen would actually rest on the floor beneath her. Notwithstanding this enormous size, she could (to the astonishment of all about her), still walk about her house, and would even visit some of her relations, who lived at the distance of half a mile.

In the month of February, being now forty-three years old, and thirteen months from the commencement of the complaint, her catamenia ceased. This was succeeded by a train of symptoms which carried her off.

Having obtained permission, her body was opened in the presence of several gentlemen, and the following appearances were marked: the omentum covering the abdominal viscera, to appearance healthy, but increased (to speak within the bounds of moderation) to fifty times its natural size. Its blood-vessels, which composed the principal part of its bulk, measured one-fourth of an inch and upwards in diameter. It was attached to a tumour, presently to be described, into which its blood-vessels evidently penetrated.

The omentum was separated from its attachments, and immediately beneath, and between it and the intestines, lay a substance of a whitish colour, firm and resisting to the touch, which had almost usurped the cavity of the abdomen. The intestines were made to occupy but a small part of their natural situation, and the spleen, stomach, and liver were forced high up into their respective habitations. On dissecting away this tumour, it was found to have formed some partial adhesions to that part of the peritoneum which lines the pelvis. It was evidently discovered to proceed from some part of the internal organs of generation, and, after separating it from the above attachments, by a transverse section of the vagina, it was easily removed.

On reviewing the abdominal viscera, the vesicula fellis and vesica urinaria were found preternaturally enlarged, which was attributed to the pressure of the upper part of the tumour on the ductus communis cholidicus in the first case, and to its pressure on the pubis in the latter. In the doublings of the peritoneum, formed by its reflection over the intestines, were discovered innumerable small collections of a watery fluid, which appeared to be contained in the cells of the cellular membrane.

The parts which had been dissected away were now examined. The ligamenta lata et rotunda, the ovaria, the tubæ fallopianæ, and vagina were distinctly observable and free from disease, except that the fallopian tubes were somewhat elongated and distended with an aqueous fluid which they contained. The os tincæ was perfectly natural in size and appearance, but the uterus, which was discovered to be the seat of disease, was lengthened to six or seven inches, and increased in diameter to about four. Its cavity was of the depth of a common probe, and of its ordinary width. In the body of the uterus was found several other bodies of a firmer texture than the uterus itself, and of a roundish form; some of which, on their exterior surface, were surrounded by a thick bony incrustation. From the body of the uterus, likewise, proceeded a number of tumours of a kidney-shape, weighing from half an ounce to upwards of a pound. These adhered, some by a short, thick, others by a long, slender neck, which last seemed to be composed of a reflection of the peritoneum, of cellular membrane, and of blood-vessels. From the fundus uteri proceeded a tumour, by far the most bulky of the whole, and which of itself weighed thirty-one and a half pounds. It originated by a very short and thick neck, which appeared to be of the exact structure, and indeed to be a continuation from the uterus itself. On opening these bodies, one uniform structure prevailed. They were vascular, whitish, and of a firm grisly texture. In one of the small, and in one spot on the large tumour, a fluctuation was perceived, and, on opening them, a yellowish, glairy, inodorous liquor was formed, which had the appearance of proceeding from the decay of the cavities it filled.

The blood, which supported this remarkable diseased state of the uterus, was supplied by an enlargement of the uterine vessels, and from the omentum, as formerly noticed.

It is only further to be remarked, that the whole weight of the uterus, with its connections, was thirty-six pounds. I remain, &c.,

Your obedient servant,

GEORGE CALLAWAY.

Benjamin S. Barton, M. D. &c.

XVIII. *Sketch of the Medical Topography of the Military Tract of the State of New-York. In a Letter from Dr.* JOHN H. FRISBRE, *of Camillus, to* DAVID HOSACK, *M. D., of New-York. Continued (and concluded) from the Medical and Physical Journal, Vol. II. Part II. page* 85.

Query 17. " WHAT treatment do you find the most successful?

Answer. In replying to query eleventh, the mode of treating our epidemics in former seasons, as well as in this, was described. The simple mode of treating them, which has been practised this season, at first view, appears to have had the best effect. Whether this has been owing to any essential difference in the disease itself, making it different from the epidemics of preceding years, can only be known, with certainty, by trying it, for several successive years. My own opinion, which corresponded with that of most of the practitioners in this quarter, is that the fevers of this season have been much more inflammatory than has generally been the case.

The practice of giving nitre, as a febrifuge, instead of antimonials, in our fevers, has not, until this period, been much in use in this country; neither has the infusion of Little Solomon's-Seal ever been given by any regular practitioner, in this country, to my knowledge, till I recommended it. I found that the Indians used it in fevers, by the name of " White-root." This suggested to me the propriety of trying its effects. I found it to form an agreeable mucilaginous drink, and have used it myself, during the whole of the season. Those physicians to whom I have made mention of its apparent good effects, after recommending it themselves to their patients, have told me that they thought it an excellent drink in fevers, and preferable to any in common practice. I am so well persuaded of deriving benefit from it, that I shall continue to use it, until I shall think otherwise.

Supplementary Answer to Query 15.

The appearance of the skin, on the first attack of the disease, is sometimes natural, but often of an orange colour. This occurrence generally disappears as the disease advances, especially where the depleting means have been freely used. I know of but few cases in which the skin was yellow after death. This appearance may be said to take place once almost every year, in some part of the Military Tract. It happened in the case of Elijah Laurence, who died in the fall of 1800. It has occurred once this year in the town of Scipio, and I have heard of three or four other cases, in different parts of this and Cayuga county, since my residence in the western country.

There is one symptom which has appeared to distinguish the epidemic of 1800. Glandular swellings were frequently met with. They generally discharged a good pus, and this was a favourable symptom. I had one patient, in the period last mentioned; a son of C.

V. O., who had a number of glandular swellings, which suppurated, and discharged pus of a healthy appearance. After some time, and when he appeared to be recovering, abscesses formed in other parts of his body. I opened, at different times, about thirty of them: they all discharged pus of a proper colour and consistence; he was neglected a few days; and a large abscess formed upon one ham, which discharged so much, that he began to fail; and, just before death, matter issued from his ears. He died without a struggle, and with the same tranquillity that a person goes to rest.

XIX. *On the Use of the Polygala Senega, or Seneka-Snake-Root, in the Treatment of the Malignant Yellow-Fever. Communicated to the* EDITOR, *by* JAMES HAYNESWORTH, *M. D., of South-Carolina.*

THE Rev. Richard Furman, D. D., well known among the pious, whose philanthropy often led him to attempt something for the relief of those whom poverty prevented from sending for a physician, and whom, in his professional capacity, as minister of the gospel, he was called to visit, introduced another mode of treatment. The following is his own account of it:

" A mode of treatment, which has been generally, if not universally, successful for the cure of Yellow-Fever:

" If the patient is of a plethoric habit, and the symptoms run high, bleed moderately in the beginning.

But, without delay, take about three drams of the Seneka-Snake-Root, and, reducing it to a coarse powder, put it into a convenient earthen vessel, and pour to it half a pint of boiling water: cover the vessel, and let the tea simmer half an hour before the fire, when it will be fit for use. Then pour as much of it on an ounce and a half, or two ounces, of Glauber's Salts, as will dissolve them, and as soon as the mixture is cool, give a small wine-glassful to the patient, and repeat the dose every twelve or fifteen minutes, till several motions are procured, and the stomach and bowels well cleansed. Then stop the use of the mixture, and give the decoction alone, in the same quantity as before, but at the interval of an hour and a half, observing to sweeten each dose with sugar, to render it more agreeable to the stomach. This is to be continued until the fever and pains are removed, which is often effected in twenty-four hours, or less. Should the first doses of the mixture be thrown up, to ensure and facilitate its cathartic operation, it will be proper early to use injections; and if, after the first evacuations, and the use of the tea alone for some hours, the body is not kept sufficiently open, which may be known by the redness of the eyes, the offensiveness of the stools, a hard, and sometimes feeble pulse, drowsiness, and restlessness, it will be proper to resort to the use of the salts again, until free evacuations are procured: then go on with the tea as before. This mode of treatment cures the patient, while the disease is in its inflammatory stage, before it assumes the putrid form; and it is of the last importance to begin giving medicine as soon as the disease commences."

The success of this practice I frequently witnessed. After it became public, heads of families often cured their domestics themselves, by pursuing it. The enemies of the practice alleged, that, where it succeeded, colds, and slight cases of fever, depending on obstructed perspiration, were uniformly mistaken for Yellow-Fever; but I had abundant opportunities of convincing myself that this allegation was not true. Besides, apparently slight cases, as I have already remarked, left to themselves, soon ended in evident Yellow-Fever, and death.

Either from a belief that it was unequal to the cure, or from some other cause, very few of the physicians gave the Snake-root a trial. Dr. David Ramsay thought favourably of it, but used it in only two or three cases, and then along with other medicines. The cases terminated favourably. In a letter lately received from him, he says, " It (Seneka) is always a powerful auxiliary, sometimes radically curative; but I would not be for relying on it exclusively, in seriously dangerous cases."

How much of truth there may be in Dr. Furman's opinion, that, in curing, the Seneka acts as a specific, at least in part, I shall not undertake to determine. That it is a medicine of very considerable powers, all who have experience of its virtues readily acknowledge. This vegetable mercurial has salivated; and it is well known to be sudorific, diuretic, emetic, and cathartic.

XX. *Remarks on the Treatment of the Measles. In a Letter to the* EDITOR, *from* COSMO G. STEVENSON, *M. D., of Baltimore.*

DEAR SIR,

SO much has been said on the subject of measles, that I should not presume to occupy your time in the perusal of this letter, did I not conceive it reflects such light upon the treatment of the disease, which, if once adopted, will be as certain of safety, as that vaccination prevents the variolous infection.

The first case which came under my notice, this season, occurred in the early part of January last. I had been taught to consider this disease as a peculiar inflammatory eruptive complaint, having a determination to the lungs; and, lest the matter should fall upon those viscera, was directed to keep the patient warm, give saffron-tea, cordials, sudorifics, &c., to preserve the eruption upon the surface; and bleed occasionally. This treatment I formerly pursued, but under it many died, and, upon the whole, the issue, in regard to health, was very precarious, often leaving a predisposition to pulmonary affections. I revolved these facts in my mind, and determined this season to adventure a different plan altogether, as their termination could not be more fatal.

My first care was to keep the patient in a room without fire, and almost destitute of covering. Next to administer *cold water* as a common drink, and in proportion to the patients' desire; and to suffer them to walk out of doors in any kind of weather. The only medicine I gave, was a preparation of equal parts of Pulv. Jalapii, and purified Nitre; of this fifteen grains were given, night and morning, to a child eighteen months or two years old, and so in proportion to age, from the commencement of the eruption, for two or three days. This mode equalled my most sanguine expectations; it reduced the febrile symptoms so completely, that, in two or three days, my adult patients were enabled to attend to their avocations, and the younger ones relieved from every dangerous symptom; nay, some of them were not confined an hour. I have had upwards of forty patients, of different ages and constitutions, all of whom were treated on this plan, and are now well. There is no weakness left upon the lungs, as we might have apprehended. On the contrary, those persons afflicted with this disease, and who have been treated in the warm method, with saffron-tea, hot toddy, &c., have a constant cough, and other pneumonic symptoms; and many wretched examples are now to be seen of this injurious practice. I have not found it necessary to bleed but in two cases, to both of which I was called twenty-four hours after the eruption, and who had been kept warm, and upon the cordial and sudorific plan. After venesection, they were put upon the cold treatment, and recovered in a few days. The measles, this year, in my observation, have universally been accompanied by the cynanche tonsillaris; though, I must confess, this latter disorder attacked persons who were not affected with measles: but in no instance have I seen the scarlatina anginosa attendant, nor do I think it a concomitant of mea-

C. Anderson, an African child, about fifteen months old, had occasionally suffered very considerably from two congenital hernias. March 16th, 1808, at 11 o'clock, A. M., the intestine upon the left side suffered a prolapse into the scrotum. This was soon succeeded by violent pain, vomiting, and, indeed, by all the distressing symptoms usually attendant upon incarcerated hernia. The succeeding afternoon, the mother tried an infusion of tobacco as a glyster, which I had previously instructed her to use, when her child should again be troubled with a hernial affection. It produced no other effect than an increase of sickness and vomiting.

The child continuing feverish and sick at the stomach through the following night, I was requested the next morning to visit it. The patient I found with a quick, languid pulse, and a disposition to constant retching. After an unsuccessful attempt to reduce the hernial tumour by the taxis, the child was held up by the heels, and jostled about with his head in this depending posture. This was all in vain. Cold water was then poured upon the hernial tumor, while the hips were retained in a very elevated posture, that the contractions of the abdominal muscles and viscera might be so far increased as to retract the protruded intestine into the cavity of the abdomen. But this did not produce the least diminution in the size of the tumor. I then ordered the mother to administer another enema, and left the patient, promising to call again in a very short time.

Other engagements prevented my seeing the patient again before the middle of the succeeding afternoon, when I found the febrile diathesis very considerable, the strength much prostrated, and the stomach in an exceedingly irritable state. After bleeding the patient four or six ounces, I immersed it in the warm bath, and again renewed my efforts to reduce the tumor by the taxis. These attempts were attended with the same success as my former; which determined me, after the child had been in the bath an hour or more, again to try the efficacy of cold water, to be poured upon the tumor while the patient was partially immersed in the warm water. The event proved the disproportion between the means used and the obstinacy of the complaint.

After an unsuccessful trial of all the above expedients to effect the reduction of the hernial tumor, I suggested to the parents, that an operation was the forlorn hope, upon which the salvation of their child depended, and that the sooner it was performed, the greater would be the probability of its saving the life of the patient. Upon this I left the house, agreeing to call again in the evening.

During this interval I met a medical friend, to whom I related the case, at the same time inviting him to be present while I should perform the operation the succeeding morning. My friend was polite enough to relate to me a case of strangulated hernia, that had resisted all the usual remedies, which Dr. Thatcher of Plymouth finally reduced by the external application of ether to the tumor. This determined me to give it a trial.

Accordingly, upon returning again in the evening, I ordered to be procured an ounce of sulphuric ether. The child was now again held up by the heels, and the ether poured upon the tumor as fast as it would evaporate. The intense cold which it produced excited severe pain, which the child discovered by its cries and shrieks. The ether was applied until the strength of the patient seemed to have been completely exhausted.

The hernial tumor, however, soon began to diminish in size, and, before three-fourths of the ounce of ether was used, was completely reduced. Thirty-five hours had elapsed after the hernial tumor had formed, before its reduction.

I have the honour to be, sir,
Most respecfully yours, &c.
G. C. Shattuck.

Boston, May 16*th*, 1808.

Benjamin S. Barton, M. D.

XXII. *Dissection of a Remarkable Tumor of the Respiratory Organ, &c. In a letter to the* EDITOR, *from Dr.* ISAAC HEYLIN, *of Philadelphia.*

DEAR SIR,

THE following case is transmitted for insertion in your very valuable *Journal*, provided you conceive it of sufficient importance, and likely to subserve the interest of medical science.

Respectfully yours,
J. HEYLIN.

On the tenth of March last, Mr. Donnely applied to me to vaccinate his son Charles, an infant, eight months old. On my first visit, I was surprised to find a child labouring under a very great difficulty of respiration, who, in every other respect, appeared in the enjoyment of perfect health. The mother informed me, the child had, as she supposed, taken cold about two weeks previous, for which simple means had been advised, without professional aid being applied for. As the difficulty of respiration appeared to be increasing, I was desired to prescribe something for its relief.

Conceiving, from the mother's statement of the case, that it might have experienced on attack of croup, which, through the efforts of nature, aided by a good constitution, it had struggled through, the present difficulty of breathing might be owing to a small portion of membrane remaining attached to some part of the trachea, I advised small doses of vin. antimon. and ox. siglot. to be given, with the view of exciting gentle vomiting, to detach or remove the obstruction. Both these medicines were tried, but without any apparent advantage; on the contrary, the child appeared weak and languid, for some time after the emetic, however gentle its effects; and it generally, to use the mother's language, became black in the face during the operation of the emetic, which alarmed her exceedingly.

On the occurrence of such unusual symptoms, I was induced to change my opinion, and suppose there either was a pressure on the trachea from adipose deposita, as in the case mentioned by Dr. Zimmerman, or, that some local morbid condition of parts, perhaps coeval with the child's existence, was now beginning to manifest itself. The former appeared the most probable, as the child was very fat, and, I can with much confidence say, a more complete picture of health, or an infant countenance more interesting, I have seldom beheld. Thus impressed, I advised the discontinuance of all medicines, at least for the present, excepting occasional purgatives, with the view to alter the child's habit. The vaccine action commenced and terminated favourably; several patients were successfully affected from a fine pustule on its arm.

As I did not suppose my regular attendance necessary, I did not visit the child for a week or ten days, during which some officious person advised the parents to call in additional aid, and, lest his own purse might be made liable, he recommended advice to be procured from the Pennsylvania hospital, and one of the pupils of that institution conceived himself justified in taking charge of the patient. A blister was applied to the breast, and some medicines prescribed, the particular operation of which I did not learn. But, whether owing to the natural progress of the affection, or to the means recently recommended, the child became much worse, and on the second of April I was called up by the father, who represented his son as dying.

I found it extremely restless, strong and tense pulse, with a hurried and very uneasy respiration, attended with the most ardent thirst. Six ounces of blood was ordered from the arm, which seemed to afford some relief; a calomel purge was prescribed, which operated well; and the blood-letting was repeated a few hours after, but without any additional advantage: in the afternoon the alarming symptoms returned, and death terminated the little innocent's sufferings.

At my particular request, permission was given to inspect the body, and the following were the appearances on the partial dissection that was made. On removing the sternum, and bringing the lungs and trachea into view, a large tumor was found to occupy the angle of the trachea which constitutes the commencement of the bronchia; its size and form resembled that of an English walnut; one end pressed forcibly against the angle, and for some distance along the branches, so as to lessen their diameter considerably, and projected through against the œsophagus; while the other part extended up between the trachea and superior cava, pressing against the cava, the diameter of which was so lessened, that it afforded matter of surprize how the blood could return to the heart with even tolerable facility, particularly during the act of vomiting. The tumor was glandular, and appeared to be one of the bronchial glands preternaturally enlarged. It was solid in the centre, but, on cutting into each end, a small quantity of matter was found, resembling pus. Several of the neighbouring glands were more or less in a state of enlargement, and appeared to be fast hastening on to commence their work of mischief, in case the large one just described had not been competent to the business of closing life.

We have here the evident cause of this poor infant's sufferings and death; and the reason why respiration was performed with so much difficulty is easily accounted for, when we advert to the pressure, and its consequent effect in lessening the passage into the lungs. The child's face becoming dark, while under the action of emetics, may, with equal justness, be referred to the pressure on the cava, and thereby impeding the blood in its progress back to the heart. The case appears to me an interesting one, and, perhaps, not undeserving a place in the note-books of pathologists, to whom I cheerfully resign the task of accounting for a phenomenon both curious and interesting.

It may not be improper to add, that the parents of the infant, particularly the mother, appear very healthy; and the father, had he any predisposition to a morbid condition of the lungs, would long since have had it brought into action, as he follows digging wells, and other subterraneous employments. The child's lungs were perfectly sound, excepting a small part in contact with the tumor, and to which there was a slight adhesion.

To those who may feel disposed to refer this case to a scrophulous origin it would be well to notice, that the child was, from the time of its birth, more than usually healthy, till the expiration of the eighth month, evincing no symptom of either local or general debility, or any morbid action whatever; but, on the contrary, as far as could be judged from external appearances, there was the happiest organization of parts, and such as would appear very long to have stood the vicissitudes incident to " the feverish dream of human existence."

XXIII. *Statement of Deaths, with the Diseases and Ages, in the City and Liberties of Philadelphia, from January 2d,* 1807, *to January 2d,* 1808.

DISEASES.	Under 2 years.	From 2 to 5.	From 5 to 10.	From 10 to 20.	From 20 to 30.	From 30 to 40.	From 40 to 50.	From 50 to 60.	From 60 to 70.	From 70 to 80.	From 80 to 90.	From 90 to 100.	From 100 to 110.	Ages unknown.	Total.
Abscess	2	0	0	1	0	2	2	2	0	0	0	0	0	3	12
Apoplexy	0	0	0	0	3	3	8	5	2	4	0	0	0	5	30
Aphthæ or thrush	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Asthma	2	0	0	1	1	3	1	1	3	2	1	1	0	0	16
Atrophy	17	1	0	1	0	1	1	1	1	1	1	0	0	0	25
Burns	3	1	0	0	0	0	0	1	0	0	0	0	0	1	6
Cachexy	0	1	0	1	0	0	1	0	0	0	0	0	0	0	3
Cancer	0	1	0	0	0	1	2	1	1	1	1	0	0	1	9
Casualties	3	1	0	0	0	1	0	1	2	1	0	0	0	2	11
Catarrh	1	0	0	0	0	0	2	1	1	0	0	1	0	1	7
Cholera	181	2	0	0	0	2	2	0	0	0	0	0	0	2	189
Cholic	2	0	0	0	0	1	4	7	2	3	0	0	0	2	21
Compression of brain	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Consumption of lungs	6	3	6	21	51	86	54	23	17	6	2	0	0	31	306
Convulsions	91	5	2	0	6	9	2	2	0	1	1	0	0	8	127
Contusion	0	0	1	0	1	0	0	0	0	0	0	1	0	0	3
Curved spine	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Debility	1	0	0	0	0	0	0	3	1	0	0	0	0	0	5
Decay	15	4	5	3	5	6	14	8	9	5	4	2	0	4	84
Diabetes	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Diarrhœa	21	4	3	0	2	8	3	9	7	5	5	1	0	7	75
Dropsy	1	2	1	2	5	10	6	7	5	4	5	0	0	4	54
Dropsy of the brain	27	13	2	2	3	0	0	1	0	0	0	0	0	0	48
Dropsy in the chest	1	1	1	1	2	2	2	3	1	4	1	0	0	1	20
Drowned	0	0	4	2	0	1	3	0	0	0	0	0	0	16	26
Dislocations	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Drunkenness	0	0	0	0	0	3	4	0	0	1	0	0	0	6	14
Dysentery	26	9	6	4	4	2	6	3	1	1	1	1	0	6	70
Dyspepsia	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
Epilepsy	1	0	0	1	0	1	0	0	0	0	0	0	0	2	5
Erysipelas	2	0	0	0	0	1	0	0	0	0	0	0	0	0	3
Fever	6	3	3	5	2	6	2	3	3	2	1	0	0	0	36
Fever, intermittent	2	1	0	1	0	0	0	0	0	0	0	0	0	0	4
—— remittent	2	1	1	2	2	2	4	2	1	1	0	0	0	2	20
—— bilious	1	0	1	0	4	1	2	0	1	1	0	0	0	0	11
—— malig. bilious	0	0	0	1	1	0	0	0	0	0	0	0	0	1	3
—— hectic	1	0	0	1	1	1	0	0	0	0	0	0	0	0	4
—— nervous	0	0	1	3	1	1	2	2	0	0	0	0	0	0	10
—— putrid	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
—— scarlet	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2
—— inflammatory	0	0	0	0	1	1	0	2	1	0	0	0	0	0	5
—— puerperal	0	0	0	0	4	2	0	0	0	0	0	0	0	1	7

CONTINUED.

ISEASES.	Under 2 years.	From 2 to 5.	From 5 to 10.	From 10 to 20.	From 20 to 30.	From 30 to 40.	From 40 to 50.	From 50 to 60.	From 60 to 70.	From 70 to 80.	From 80 to 90	From 90 to 100.	From 100 to 110.	Ages unknown.	Total.
typhus	0	0	3	3	8	8	7	0	1	0	0	0	0	4	34
re	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
s hæmatodes	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
ene	3	2	0	2	2	1	3	1	2	1	1	0	0	2	20
	0	0	0	0	0	1	0	2	2	0	0	0	0	1	6
	0	0	0	0	0	0	0	0	1	0	1	1	0	0	3
	0	0	0	0	0	1	1	2	2	0	0	0	0	1	7
or croup	41	9	4	0	1	0	0	0	0	0	0	0	0	0	55
ia	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
ng cough	15	1	1	0	0	0	0	0	0	0	0	0	0	0	17
rrhage	0	0	0	2	1	1	2	1	0	0	0	0	0	0	7
. of the brain	2	1	1	0	0	3	1	0	0	0	0	0	0	4	12
—— lungs	14	2	0	0	7	8	6	2	2	1	0	0	0	6	48
—— liver	1	0	0	0	1	0	2	2	0	0	0	0	0	2	9
—— breast	2	1	0	1	0	0	0	1	0	0	0	0	0	2	7
—— stomach	1	1	0	2	0	0	0	1	1	0	0	0	0	0	6
—— bowels	10	3	2	3	1	2	0	0	0	1	0	0	0	1	23
—— bladder	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2
za	3	0	0	2	1	3	3	6	3	4	3	0	0	2	30
ty	0	0	0	0	6	8	3	8	2	0	0	0	0	4	31
rgy	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
d jaw	1	1	1	3	0	1	1	0	0	0	0	0	0	1	9
ce	0	0	0	0	0	1	0	1	0	0	0	0	0	1	3
red	1	0	0	0	0	0	0	1	1	0	0	0	0	0	3
e	0	0	0	0	0	0	0	0	1	22	3.	2	4	5	65
	0	0	0	0	0	0	2	9	3	1	0	0	0	3	18
ition	0	0	0	0	2	7	0	0	0	0	0	0	0	3	12
y	2	0	2	0	2	9	7	5	3	1	0	0	0	7	38
sus uteri	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
atism	0	0	1	0	0	0	0	0	0	1	0	0	0	2	4
s of the liver	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
ula	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3
pox, natural	7	6	2	0	6	1	0	0	0	0	0	0	0	8	30
—— inoculated	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
roat	2	2	1	0	0	0	0	0	0	0	0	0	0	2	7
rn	84	0	0	0	0	0	0	0	0	0	0	0	0	0	84
	3	1	1	1	0	4	4	3	2	1	0	0	0	11	31
	0	0	0	1	1	5	0	1	0	0	0	0	0	1	9
	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
tion	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
s	0	0	0	1	5	5	1	1	1	0	0	0	0	1	15
ng	0	10	0	0	0	0	0	0	0	0	0	0	0	0	10
uloureux	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
s	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	0	2	0	0	0	1	0	2	0	0	0	0	0	0	5
s	0	24	9	4	0	0	0	0	0	0	0	0	0	0	37
es unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	51	51
otal	614	121	65	79	144	236	172	139	88	79	60	11	4	233	2045

DEATHS IN EACH MONTH

OF THE FOREGOING PERIOD.

	Adults.	*Children.*	*Total.*
January	92	58	150
February	73	45	118
March	109	45	154
April	111	46	157
May	90	43	133
June	91	68	159
July	101	136	237
August	117	151	268
September	140	97	237
October	108	54	162
November	101	54	155
December	71	44	115
Total	1204	841	2045

The foregoing statements were drawn up, with as much accuracy as possible, from the returns given to the Board of Health, from physicians and others.

THE

PHILADELPHIA

MEDICAL AND PHYSICAL JOURNAL.

SECTION SECOND.

REVIEW.

I. *A Discourse on some of the Principal Desiderata in Natural History, and on the best Means of promoting the Study of this Science, in the United-States. Read before the Philadelphia Linnean Society, on the 10th of June, 1807. By* BENJAMIN SMITH BARTON, *M. D., &c.*

THE PHILADELPHIA LINNEAN SOCIETY was established for the promotion of Natural History. Its original founders (the greater number of whom were young men), ardently attached to the study of nature, perceived the want of an institution which should be exclusively devoted to the cultivation of the different branches of natural history: an institution similar to those which have been founded, and have flourished, in most of the countries of Europe, where the names, the nature, and the properties of natural objects have been studied with any degree of attention, or success.

After a short view of the nature and objects of natural history, the author of the *Discourse* proceeds to point out some of the principal Desiderata in the science, under the various heads of ZOOLOGY, BOTANY, GEOLOGY, and MINERALOGY, and, lastly, METEOROLOGY. As a specimen of the work, we select the concluding part of the *Discourse*, to which is added an *Appendix*, containing Notes and Illustrations.

"Such, gentlemen, are some of the numerous subjects to which I would wish to see the members of this Society turning their attention. The field, you will readily perceive, is an ample one. It will afford a rich harvest to many, both of the present and of future ages. For the bounds of natural history will, for ever, be enlarging.—It is much to be wished, and I flatter myself, that our wish will be gratified, that every member of the Society will consider himself pledged to add something to the stock of our knowledge of the natural history of the country. Some of you may find leisure to furnish us with regular essays, or memoirs. These, or extracts from them, I shall hope to see published, at some future period, in the TRANSACTIONS of the Society. Others of you, to whom the cultivation of *mere* natural history may be less interesting, or who may not possess sufficient leisure for the purpose, may contribute individual FACTS, or experiments, which, if they be collected or made with care, may form a most important part of our objects. These facts might be digested and arranged into regular order, and published in the Society's transactions, or copied, by the secretaries, into a book kept for the purpose, and allowed to be used by every member, in any way he may think proper.

" As there is no science which is more disgraced by what are called facts than natural history; and as it should be the object of every real philosopher, to diminish, to the utmost of his power, the quantity of error, and to prevent the accumulation and extension of idle tales; so it is to be wished that every member, or person, who may transmit to us notices concerning our animals, our vegetables, and minerals, or any of the other objects of the institution, would always be careful to distinguish between what is certain or well ascertained, and what is probable or conjectural. I say nothing of the necessity of a solemn and religious adherence to truth. I say nothing of that playfulness with science (if I may so express myself), which disgraced the character of one of the Presidents* of the Royal Society of London; and has disgraced the character of other cultivators of natural history. But I must not omit to say a few words on the subject of credulity.

" Credulity is one of the most injurious features in the character of the naturalist, as well as of the historian. Its influence, in one individual, is often felt and propagated through many ages. Unfortunately, too, it has been the vice of naturalists, or those who have touched on questions relative to natural history, in all ages. It was his credulity, more than any thing else, which soiled the immortal work of Pliny on *Natural History:* a work, though often erroneous, and deformed by anile stories, above all praise; a work upon which,

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" * Martin Folkes, Esq.—See Mr. Pennant's Outlines of the Globe, vol. i, p. 237.

if we possessed no other materials for the purpose, one might construct a successful defence of the knowledge of the Romans in the time of Vespasian.—How much do we feel for Tacitus, the manly and the energetic Tacitus, whan he seriously tells us, in his *Annals*, that 'in the Consulship of Paulus Fabius, and Lucius Vitellius, after a long vicissitude of ages, the PHOENIX arrived in Egypt;' when he goes on to collect together the most extravagant stories relative to the life and the habits of this miraculous bird: some of which, indeed, his judgment leads him to reject; observing, 'that in the account of the Phœnix there is no doubt a mixture of fable;' 'but that this bird (says the great historian), from time to time, appeared in Egypt, seems to be a point sufficiently ascertained.' It is to be regretted, that on other subjects, relative to natural history, the Roman historian has exhibited some marks of his credulity; I will not willingly say, of his ignorance*. Indeed, few are the writers of civil history who have not sullied their works, when they have had occasion to treat of, or touch upon, points of natural history. With great pleasure, however, do I mention, as an exception to this position, the vast work of Mr. Gibbon on *the Decline and Fall of the Roman Empire:* a work from which even the student of natural history may collect many facts and much information; and this, too, so correctly and so cautiously related, that I do not recollect a single instance in which the fidelity of Gibbon, as a *naturalist*, can be called in question. How unlike his friend Dr. Robertson, who, with stronger and with better lights to

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" * See the Germania of Tacitus.

guide him, has deformed his *History of America* with the most palpable falsehoods and errors, concerning the physical condition of this continent, and of its inhabitants!——We blush for Sir Walter Raleigh, whose learning, and talents, and taste, enabled him to write a stupendous and elegant work on the history of the world, when we read his account of whole nations of American Indians, who were entirely destitute of heads.——What shall we think of the learned Spanish historiographer, Herrera, who tells us, that 'the Trochilus, or Humming-bird, feeds like a bee on flowers, and the dew that lies on them, and when the rains cease, and the dry season comes on, clings to the trees by its beak, and dies; but again returns to life, the following year, upon the return of the rainy season.' These (some of them, at least) are fit subjects for the rich genius and the warm imagination of a poet at his ease, amid the spicy groves or the flowery meads of Iran, or of Hindustan. Others of them, again, might, without the aid of much imagination, be employed as new subjects in the work of some future Ovid. All of them must be rejected by the NATURALIST: he will even reject them with a species of disdain; and, indeed, it is not without some difficulty, that we can prevail upon ourselves to attach a high authority, in *any* thing, to men who were capable of believing, and of publishing, such fables as I have mentioned.

"There is, however, some apology for credulity in matters of natural history. The works and ways of GOD are, indeed, wonderful, and many things, apparently fabulous, are strictly true. Perhaps, there is no fable in natural history which has not arisen, very naturally I was going to say, out of some obvious and well authenticated fact. The beautiful fable of the Phœnix may have taken its rise from the history of the periodical returns of a comet, and the theory of the learned of Egypt, or some other region, concerning the nature of these bodies.—The fable of Herrera is supported by the fact, that the Trochilus, like many other birds, is susceptible of, and actually does sometimes pass into, the torpid state: a state, in many animals, extremely similar to that of complete death: for who, but the most keen-eyed physiologist, can mark, in many instances at least, the line between life merely *interrupted*, and life *finished*, or at an *end?*

" With such difficulties in the investigations of natural history, surrounded by truths which pass, by the slightest and most imperceptible shades, into fables, it should be the constant aim of the naturalist to describe and paint nature as she is. The addition of one solitary tint, whether added by the suggestion of fancy or urged by credulity, may render the picture unworthy of attention, 'HISTORIA NATURALIS (I use the words of a very respectable naturalist, who is treating of the history of an animal, concerning which the most extravagant fables had been related), 'Historia Naturalis non bene digesta abit in Fabulam; praejudicia vero et nimia Credulitas Veritatem, etsi cominus satis cognitam, longissime aliquando propellunt*.'

* " Jacobus Theodorus Klein. See his curious account of the Mus Alpinus, or Marmot, in the Philosophical Transactions, Numb. 486, p. 180, &c., for the year 1748.

"You will observe, gentlemen, that I speak of the printing of our *Transactions.* I do not suppose, that this is a step which can be taken *immediately.* But if the Society continue to be conducted in the manner I hope to see it conducted; if it be supported by the talents and the zeal of the members who now compose it; I cannot entertain a doubt, that, in less than three years from the present period, we may be in possession of materials for an original, and interesting volume; a volume which shall reflect honour upon the Society, extend the empire of natural history, and teach our countrymen the real utility and importance of a science to which they have just, as it were, begun to pay any attention; a science which may be said to date its origin, in Pennsylvania, if not in the United-States, from the year one thousand seven hundred and eighty-nine.

"I do not despair of seeing the Society in possession of a room of its own. I hope to see its members in possession of a good and even extensive LIBRARY. The latter may be formed without much difficulty, and at a very moderate expence, whenever the Society shall show, by its transactions or proceedings, that it is at all worthy of the name which it bears. I think that some of your attention should be directed towards the formation of a MUSEUM, or collection of natural objects, particularly such as belong to the American continent. I neither wish nor expect to see the Society engaged very extensively in this business, as there is already established among us a MUSEUM of great value, and which does honour to its founder, and even to the United-States; a museum to which every American citizen should endeavour to contribute his mite of support. There are, however, two classes of objects which we ought to labour to collect; I mean specimens of our indigenous *Plants;* and specimens of our *Minerals*. Indeed, I will flatter myself, that every member of the Society will feel it a kind of duty incumbent upon him, to furnish us with such rare and curious vegetables or minerals as he may be able to collect, in different parts of the country. In this way alone, a great accession may, in the course of a very few years, be made to the stock of our knowledge of the BOTANY and MINERALOGY of the United-States.

"You have agreed, gentlemen, to denominate your association the PHILADELPHIA LINNEAN SOCIETY. In making choice of this name, in preference to every other, you have gratefully rendered homage to one of the most illustrious cultivators of science, the world has, hitherto, produced. Certainly no other man, neither in ancient nor in modern times, has contributed so much to extend our acquaintance with the *external* characters of the living works of nature, on this globe, as has LINNAEUS. Endowed, by a beneficent Creator, with an uncommon portion of genius; warmed by an imagination of the richest kind, which, however, his correct judgment generally restrained within proper limits; blessed with the most persevering and virtuous industry, which enabled him to accomplish whatever schemes of usefulness or glory his sanguine mind may have devised; which enabled him to triumph over poverty, and over the active malevolence of his enemies; thrice happy in an ardent and well-directed ambition, without which the energies of mind are oftentimes of little avail; the Naturalist of Sweden has assumed one of the highest stations in the throne of intellectual glory. I am far from being a blind idolater at the shrine of LINNAEUS. I am not ignorant of the imperfections of his systems, or of the errors into which he has often fallen. But these errors, when we consider the vast compass of sciences —medicine and all the branches of natural history— which the bold and fertile genius of Linnæus embraced; —these errors, I say, must be acknowledged to be few in number. And, in regard to his systems, should they *all* (as some of them, unquestionably, will) crumble into dust, or share the fate of other systems, neglect—the world, a thousand years hence, will continue to regard with veneration and with wonder those powerful and successful efforts, which called Natural History from an embryo and mis-shapen state into form, into regularity and beauty, and even placed it in one of the most elevated stations among the sciences which have attracted the notice of mankind, during the whole of the eighteenth, and the first years of the nineteenth, century.

"Let us follow, then, with zeal, with industry and care, as far as our talents, and the more pressing pursuits and duties of our life, will permit us to follow; let us follow, I say, the footsteps of the great modern architect of natural history. With him as our guide; with only a portion of his talents and his warm zeal;—in these regions of America, where God has displayed to his children of Liberty and Comforts, the immeasurable variety and usefulness of his works, for their study, and

II. *A Compendium of the Theory and Practice of Midwifery: containing Practical Instructions for the Management of Women during pregnancy, in labour, and in child-bed; calculated to correct the errors and to improve the practice of midwives, as well as to serve as an introduction to the study of this art for students and young practitioners. By* Samuel Bard, *M. D. New-York: Collins & Perkins.* 1807.

THIS small volume, consisting of about 240 pages, is the production of an eminent physician, who has, we think, added to his former reputation by the publication of the present work. It is, indeed, a work of considerable merit, and, we flatter ourselves, will be of essential service in the United-States. It is illustrated by a number of figures, well engraven in wood, by Mr. Anderson, of New-York.

THE

UNIVERSITY OF PENNSYLVANIA.

THE Medical Department of the University of Pennsylvania is rapidly increasing in respectability, and in the number of its pupils. The aggregate amount of the Students, during the last winter, was not less than 270, or 275. The greatest number of these were from Pennsylvania, and from the states south and west of Pennsylvania. A few were from New-England; a greater number from the state of New-Jersey; two or three from the West-India Islands; and at least two from Europe.

On the 27th of April last, a public examination of the Medical Candidates was held in the presence of the Trustees and Faculty of the University, and a number of the citizens; and on the following day, the degree of Doctor of Medicine was conferred upon sixty gentlemen, each of whom had written and submitted to the Medical Professors an Inaugural Dissertation, which they publicly defended. The following is a list of the Graduates, a notice of the States or countries from which they came, or in which they reside, and the title of their dissertations.

1. Branch T. Archer, of Virginia, *On Cutaneous Absorption.*

2. John Arnest, of Maryland, *On Abscess.*

3. William Aspinwall, of Massachusetts, *On Diabetes Mellitus.*

4. Jacob Baer, of Frederick-Town, Maryland, *On Puerperal Fever.*

5. Samuel Baker, of Maryland, *On the Form of Disease usually denominated Chorea Sancti Viti.*

6. William P. C. Barton, of Pennsylvania, *On the Chemical Properties and Exhilarating Effects of the Nitrous Oxide Gas; and its Application to Pneumatic Medicine.**

7. Samuel Benezet, of Pennsylvania, *On the Cynanche Trachealis.*

8. Samuel Betton, jun., of Philadelphia, *Observations made in two Voyages to India.*

9. George Callaway, of Virginia, *An Experimental Inquiry into the Properties and Effects of the Juglans Cinerea.*

10. James Clarke, of the County of Cavan, in Ireland, *On the Diurnal Revolutions of the Body.*

11. Samuel Colhoun, of Pennsylvania, *On the Influence of Light in producing the Colours of Animal and Vegetable Bodies.*

12. Matthew Cunningham, of Philadelphia, *On Local Inflammation.*

13. John H. Davis, of Pennsylvania, *On the Supposed Influence of the Moon.*

14. Archibald B. Dick, of Alexandria, in Virginia, *On the Pulse.*

15. William Dicks, of South-Carolina, *On Tetanus.*

16. George Fairlamb, of Pennsylvania, *On Hepatitis.*

17. Michael A. Finley, of Baltimore, *On the Use of the Muriatic Acid.*

18. William Foushee, jun., of Virginia, *On Cynanche Trachealis.*

19. Alexander Frazer, of Charleston, S. C., *An Attempt to prove that there is no definite period of Utero-Gestation in the Female of the human species.*

20. Robert O. Grayson, of Virginia, *An Investigation of the different opinions in favour of the Contagious nature of Remittent and Intermittent Fevers, together with an Inquiry into the Laws of Miasma, &c.*

21. William Grayson, of Virginia, *On the Nourishment of the Fœtus in Utero.*

43. John Hunter Pope, of Georgia, *On the Vesiculæ Seminales.*

44. Philip C. Pope, of Virginia, *On the Nature and Treatment of Hypochondriasis.*

45. George Poyntell, of Philadelphia, *On that Grade of Madness called Manalgia.*

46. Thomas Grimball Prioleau, of Charleston, South-Carolina, *On the Aralia Spinosa.*

47. Boanerges Roberts, of Virginia, *On the Medical Properties of a species of Asclepias, or Swallow-wort.*

48. Reuben S. Safold, of Georgia, *On the Influence of the Mind on the Body in producing Diseases and Death.*

49. Richard Shubrick, of Charleston, South-Carolina, *On Menstruation.*

50. Fitz R. Smith, of New-Jersey, *On the Medical Properties of the Common Daffodil.*

51. William Kilty Smith, of Maryland, *On Mortification.*

52. Isaac A. Smith, of Virginia, *On the Virtues of Mineral Waters.*

53. Samuel Stewart, of Pennsylvania, *On Cuticular Absorption.*

54. John D. Thomas, of Philadelphia, *On the Scrophulous Disease of the Hip-Joint.*

55. Isaac Todd, of New-Jersey, *On Thirst, and the Advantages of abridging the Use of Diluents in Diseases which require Depletion.*

56. Edmund H. Tucker, of George-Town, South-Carolina, *On Cataract.*

57. John Wilson, of Alexandria, Virginia, *On the Transfusion of the Blood.*

58. John Wishart, of Pennsylvania, *On Thyrocele (or Bronchocele).*

59. Joseph Woollens, jun., of Pennsylvania, *On Hydrocephalus Internus.*

60. Thomas Worthington, of Maryland, *On the Modus Operandi of Medicines.*

The degrees were conferred on the Graduates by JOHN M'DOWELL, LL. D., who is now the Provost (or Principal) of the University; after which an Address was delivered to them by DR. BARTON, the Dean of the Medical Faculty, for the present year. This Address will be published.

By a late regulation of the Trustees of the University, the medical graduates are not obliged to *publish* their Inaugural Dissertations. After the dissertations have been submitted to the Medical Faculty, *if they are approved of*, the publication is altogether optional; or entirely the act of the graduate. In consequence of this regulation, which has now been in operation for two terms, only a small number of the dissertations have been printed and published. Of the sixty, the titles of which are given above, only three have been published. These are marked with an asterisk *. Others, however, are intended for publication, either entire or in part; and some of them, perhaps, in a state more improved (by the authors themselves) than that in which they were originally presented to the Medical Faculty.

The writer of this account does not hesitate to give it as his own *individual* opinion, that the present existing regulation of the Trustees, in regard to the Inaugural Dissertations, is an improvement upon the former system. To *compel* a young man, who acknowledges that he has nothing new or important to communicate to the world (and whose dissertation is found, on examination, to have no claim whatever to *original* merit), to appear before the public as an author, seems, to use the mildest phrase, an *unnecessary* procedure. It is not meant to be insinuated, that such is the character of *all* the Inaugural Dissertations which have, hitherto, been published in Philadelphia. So far is this from being the case, that it is believed, that few universities, in any country, have produced more respectable original dissertations than some *(not a few)* of those which have, at various times, particularly since the year 1792, been presented to the Trustees and Medical Professors of the University of Pennsylvania. These dissertations have not only procured reputation to their authors, but have even served to raise the reputation of the school which gave them birth.

But it is well known that many of the inaugural dissertations of this and other Universities are, at best, but mere transcripts, and even imperfect transcripts, of the opinions or doctrines of the professors. Others are crude and unfinished performances, such as only serve to diminish the reputation of the school; and such, indeed, as their authors, at the expiration of a year or two, are ashamed to see, or acknowledge. Surely, it is advisable that such essays should not be *permitted* to be published; or, at least, it is proper that the authors should not be *constrained* to publish them.

It may be said, however, as it often has been said, that the new regulation of the Trustees (a regulation introduced at the request of the Medical Professors) serves to deprive the public of some *important* dissertations. Whatever foundation there may be for this suspicion, it is certain, that the new rule does not necessarily lead to this evil. On the contrary, it is even probable, that the dissertations which are really worthy of publication will, sooner or later, be printed and published in a more finished form than that in which they were originally presented to the professors. In regard to several of the dissertations of the present year, it is bricius we are indebted for the discovery of the organs of hearing in some species of insects; especially in those of the family of Cancer, or Crab: and his observations on the torpid state of animals are extremely interesting. His numerous papers, distributed through the periodical publications of Europe, on various subjects of natural history, are but little known in America: but his larger works have reached us, and will ensure to him a lasting reputation among the greatest naturalists that the world has, hitherto, produced. As an ENTOMOLOGIST, we suppose he has never been equalled by any one.

Fabricius's last publication, that the Editor has seen, is an Introduction to the Study of Natural History*. It is a small volume, intended chiefly as a text-book for his lectures. It comprizes the three kingdoms of Nature, and is, in many respects, a work of real merit. It bears, however, rather the marks of haste in composition; and it is to be regretted, that it is, in one very prominent instance at least, sullied by a hypothesis (that respecting the Negroes) which would seem to show, that the author had not *always* restrained, within due bounds, his imagination, and his love of system.

It has been the fortune of Denmark to give birth to some of the greatest naturalists of modern times. It has been her misfortune to be deprived, by death, of several of these, in the period of a very few years.

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* Resultate Natur-Historischer Vorlesungen. Kiel: 1801.

Within the short term of thirty months, she has lost VAHL, her greatest botanist; and, indeed, the greatest botanist of any country, since the death of Linnæus*: and now she deplores the loss of her FABRICIUS. These are not small losses: for much of the "glory (if not, as Dr. Johnson says, "the chief glory") of every people arises from its authors." Two such geniuses as Vahl and Fabricius can hardly be expected to arise, in any one country, in less than a century.

* * *

II. Dr. John Redman died, in Philadelphia, on the 18th of March last, at the advanced age of eighty-six. He was a native of Pennsylvania, and finished his medical education at Leyden, where he received the degree of Doctor of Medicine, in the year 1748. On this occasion, he published an inaugural dissertation *De Abortu*. On his return to America, he commenced the practice of physic, and for many years (not less than forty) he was extensively engaged in the arduous duties of his profession.

On the appearance of the yellow-fever in Philadelphia, in the year 1793, Dr. Redman was one of the few physicians, then living in the city, who had had an opportunity of seeing the same malignant malady in its former visit to the city, in the year 1762. At the request of the College of Physicians, of which he was at that time, and for several years after, the President, he

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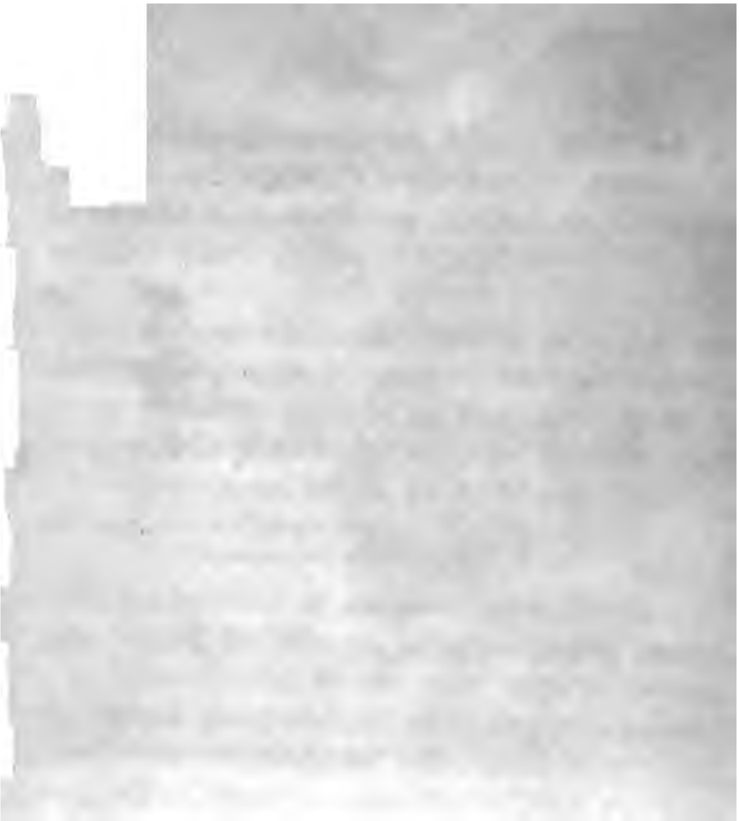
* See Journal, vol. II. part i. page 145, &c.



FIRST SUPPLEMENT

TO THE

PHILADELPHIA

MEDICAL AND PHYSICAL

JOURNAL.

COLLECTED AND ARRANGED

BY BENJAMIN SMITH BARTON, M. D.,

OFESSOR OF MATERIA MEDICA, NATURAL HISTORY, AND BOTANY,
IN THE UNIVERSITY OF PENNSYLVANIA.

March, 1806.

PHILADELPHIA,

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1806.

DISTRICT OF VANIA TO WIT.

BE it remembered, tha seventh day of March, in the
tieth year of the Independence United States of America, John
rad, of the said district, hath deposited, in this office, the title of a book, the
t whereof he claims as proprietor, in the words following, *to wit*, " First Sup-
ement to the Philadelphia Medical and Physical Journal. Collected and
ged by Benjamin Smith Barton, M. D., Professor of Materia Medica,
l History, and Botany, in the University of Pennsylvania," in confor-
Act of the Congress of the United States, entitled, " An act for the
ment of learning, by securing the copies of Maps, Charts, and
" Boo he Authors and Proprietors of such Copies, during the times therein
ntio and also to the act, entitled, " An act supplementary to an act
ntitled an act for the encouragement of learning, by securing the copies of
" Maps, Charts, and Books, to the Authors and Proprietors of such copies,
" during the times therein mentioned, and extending the benefits thereof to the
" arts of designing, engraving, and etching historical and other prints."

D. CALDWELL,
Clerk of the District of Pennsylvania.

FIRST SUPPLEMENT

TO THE

PHILADELPHIA

MEDICAL AND PHYSICAL JOURNAL.

SECTION FIRST.

FIRST SUPPLEMENT

TO THE

PHILADELPHIA

MEDICAL AND PHYSICAL JOURNAL.

I. *Sketch of the Medical Topography of the country that is watered by the upper streams of the Mohawk-River, and the adjacent streams of the Oneida-Lake, &c., in the State of New-York. In a letter from Mr.* MATTHEW BROWN, *jun., to* DAVID HOSACK, *M. D., of New-York. Communicated to the* EDITOR, *through the hands of Dr.* WILLIAM CURRIE, *of Philadelphia, by Dr.* HOSACK.

SIR,

YOUR letter of September last was duly received. I sincerely lament the occasion which again called forth inquiries into the "nature and origin of the Yellow-Fever," and the dangers you must have encountered in the inquiry. The advantages of those inquiries, if you can arrive at the truth, are honourable to yourself, and incalculable to your city, and to the world at large. My apology for not answering your letter immediately is, that, at the time of receiving it, I was much engaged in professional business, and some avocations in my affairs made it necessary for me to be absent, for a considerable time, last fall, and the present winter.

I should gladly throw in my mite to facilitate your research after the truth: such information as I am in possession of, and the experience I have had in the disorders of this country, shall be detailed to you with cheerfulness. Yet, if I was to hazard an opinion, a description of the symptoms and termination of the disorders of our country, will go but little towards the establishment of the "doctrine of domestic origin of yellow-fever."

I will in substance answer your queries, by giving you a sketch of the face and appearance of this country; an account of the disorders which generally appear in the season, with the method I have practised in the cure. It may not be improper to observe, that the unguarded, or designing, declarations of many physicians, either to fill the gaping multitude with wonder, or to swell their own fame, have given currency to strange reports, which have gained belief in proportion to the distance they have travelled; and those reports are very apt to be credited, if they contribute in the least to the establishment of a favourite doctrine. But the facts are what you want.

I have resided at this village (Rome) between ten and eleven years. It is situated at the head of batteaux navigation in the Mohawk-River and Wood-Creek, about 116 miles to the west of Albany, 100 from Schenectady, and about 40 above the Little-Falls.

At the last-mentioned place, there have been undoubtedly great changes in nature. The mountain, which comes down on each side of the river, shows evident marks of the water having fallen over the strait in a different place from the present falls. The rock is excavated, in many places, nearly a mile below the present falls, from twenty to forty feet above the highest water. These excavations are of a nature not to be mistaken, as they are worn smooth, even, and circular, and capacious enough to contain many hogsheads. If I was to hazard a conjecture, I should say, that I believed the country west of the Little-Falls, from five to fifteen or twenty miles on each side of the Mohawk-River, has once been a lake. I am confirmed in this opinion by the appearance of the hills, the quarries of lime-stone, composed of shells, &c.; and even the loose stones in the fields have the appearance of having been washed with water, and many of them are made of shells and other substances, which are petrified, and remain entire. The face of the country, for a considerable distance, is level, and the flat-lands, particularly on the Mohawk-River and Wood-Creek, are made by the washing of the adjacent ground. We find trees, leaves, and other vegetable substances, from five to ten feet below the surface, and at considerable distance from the channel of the streams. I know of many instances where those logs have been found several feet lower than the bed of the Mohawk, or Wood-Creek.

We have but few ponds or swamps of stagnant water, if we except those made by the Canal-Company, on Wood-Creek, the last and the summer before. The soil, for a considerable depth, is a rich compost, made from the annual decay of the timber, leaves of trees, and other vegetables.

About fourteen miles to the west is the Oneida-Lake: the country around it is flat and swampy. Twenty miles north-west from the west end of the Oneida-Lake is Lake-Ontario. There are many swamps and marshes on this lake, especially near the mouths of the creeks and rivers. It has been the opinion, that the country about the Oneida-Lake is the most sickly of any part of the western country, except at the salt-springs in the county of Onondaga.

Our summers are unsteady, as to the degree of heat. In the months of July and August, we have a few days of very hot weather, seldom over five or six, before a change, often to very cool, for a few days. Our changes are sudden and frequent. We have considerable rain, and long periods of cloudy, misty weather, after July, which has generally been the clearest month in the year.

The disorders of the country are such as physicians would say are natural to it, viz., intermittents, dysenteries, diarrhoeas; and, some years, typhus fever, which often goes through a family and neighbourhood, when it once gets into it. These last vary in malignancy. The last year we have not had a single case of typhus. The year before they were very frequent. Intermittents have been very common, especially on the banks of the Mohawk-River, and about the lakes. The symptoms of bilious remittent, or typhus, fevers, do not vary from the descriptions given of them by many writers on this subject, which are too well known to you to need repetition. I have observed, that persons seized with typhus grow worse at periods, from seven to ten days, until about thirty days, and recover in the same order or periods.

As to the treatment of this fever, or dysentery, I cannot say I have ever been satisfied, either with my own, or other gentlemen's practice. Perhaps there is as great variety in means prescribed for the cure of those two disorders in the country, as for Yellow-Fever in town. From what I have seen, I am far from believing that bleeding, cathartics, and the antiphlogistic method of cure to be without objections; neither am I of opinion, that bark, wine, and opium are infallible. I have generally cleared the first passages with neutral salts, jalap, and calomel, if the symptoms indicated an inflammatory diathesis, or if there was nausea, or load at the stomach. I am inclined to think, small doses of calomel, so as to affect the gums slightly, after a few days from the commencement of the disorder, and some wine and bark, on the decline of the fever, have proved most successful. Very few have died of this fever, in this village, or its vicinity, for some years past. The gums and glands about the neck, and other parts of the body, are often much affected, and even the jaw-bone quite carious, in several instances, one of which, a child, died after many weeks; another recovered, after losing a considerable piece of the jaw-bone, with three of the double teeth in it. Neither of these patients had taken calomel, but considerable quantities of bark and wine.

We have a fever in this country, which has got the name of *Lake-Fever*. This is the fever which is said to be not unlike the Yellow-Fever. It never attacks us till late in the summer, and the first months of autumn. A frost sufficient to stiffen the mud, or freeze water so that it can be perceived, puts an end to any new cases. It begins with slight chills, pains of the back, loins, and head. The symptoms do not vary from those of the ague and fever, except in the duration of the paroxysms, which have regularly an exacerbation once in twenty-four hours, and commonly in the latter part of the day. These fevers have no regular duration or change, but frequently end in regular fits of the ague and fever, and sometimes go off as the typhus. It often happens, that those who have been afflicted with this fever remain debilitated, and subject to slight returns, for two or three years, with œdematous swelling of the feet, hands, and face, a *pale yellowness* of the skin, flatulency of the stomach, and, in a few instances, a vomiting of yellow bile, once in every few weeks. I have never seen any thing which resembled the *black-vomit*, as described in the Yellow-Fever.

Very few die of this fever, if they have assistance in season. The bark with wine is a sovereign remedy, if the system is not too far exhausted, to receive the stimulus of those remedies. There is a strong languor, or leucophlegmatic appearance, in those people who have been severely attacked by this complaint; a kind of stupid insensibility, and want of animal warmth, which they often carry about them for many months. Their gums sometimes become spungy; teeth loose and carious, with hæmorrhages from the gums, nose, and throat, long after the fever has subsided, and the appetite very voracious. To one that has been in the habit of observing those fevers, it is not difficult to discern the character of the Intermittent through the whole of this fever; and I am fully convinced, it is no other than a high degree of this disorder, increased, perhaps, by the quantity of contagion, or the dirty and miserable situation of those people, as to houses, linen, and other things, which are so necessary to health.

At the Salt-Springs, in the County of Onondaga, there have been great numbers of cases every autumn. I have seen hundreds who have taken this fever, but I cannot conceive it to be different from the other cases I have mentioned.

I am, Sir, &c.

MATTHEW BROWN, JUN.

Rome, April 1, 1804.

Dr. David Hosack, New-York.

II. *On the Medical Properties of the Eupatorium Perfoliatum, or American Thorough-Wort. In a letter from* WILLIAM DARLINGTON, *M. D., of Chester-County, Pennsylvania, to the* EDITOR.

DEAR SIR,

THE beneficial effects of the Eupatorium Perfoliatum, in certain cutaneous affections, have been observed by several physicians; and I think it a medicine which merits a more frequent attention from the faculty than it has yet received. As a *Tonic*, I have used it to a considerable extent, and always with satisfaction. It serves as an excellent substitute for the Peruvian Bark; and is often admissible where the exhibition of the Cinchona would be doubtful practice. This superiority is probably owing, in a great measure, to its greater diaphoretic tendency.

I have lately given the infusion of the flowers, with the best effect, in the case of a man who had greatly impaired his constitution, by excessive potation of ardent spirits. He complained of debility of the stomach and bowels, accompanied with slow fever, and a dry, husky state of the skin. Those affections are now in a great measure removed, and his health in a fair way of being restored. He still continues the use of the infusion.

But it is in diseases of the skin that the Eupatorium exerts its most remarkable influence. A number of cases have come to my knowledge, in which the use of it has been attended with complete success. Among others, was the case of an old lady, of 78 years, who had, for some length of time, been affected with a most violent itching, and a burning sensation, of the skin, attended with great redness, to such a degree, that it deprived her of her natural rest at night, and kept her constantly uneasy during the day. It extended over her arms and legs, and appeared on her neck and back, producing the most disagreeable sensations. The violence of this disease occasionally abated on the skin, and then she was affected with nausea and loss of appetite, which always continued until the heat and itching on the skin returned, when the stomach would be completely relieved. Thus the stomach and skin antagonized each other, and clearly illustrated the principle of deriving morbid action from one part, by exciting it in another. The old lady had been in this condition for some weeks, and, previously to her application to me, had been bled, and had used a variety of liniments, but with no apparent benefit. When called in, I prescribed the powdered leaves of the Eupatorium, in doses of ten grains, three times a-day, which had the effect of entirely removing the disease, in the course of a few days. Upon its disappearance, the cuticle came off from those parts which had been most affected, and the skin resumed its natural, healthy colour.

It is true, this medicine will sometimes fail in producing the desired result, even when exhibited in the most judicious manner; but, until we shall arrive at a knowledge of *Infallibles*, the Eupatorium will, in my opinion, deserve a conspicuous station among the articles of the Materia Medica.

I am, &c.
W. DARLINGTON.

Chester-County (Pennsylvania),
Dec. 5th, 1805.

NOTE.

For an account of the medical properties of this species of Eupatorium, the reader is referred to the First and Second Parts (especially the latter) of the Editor's *Collections for an Essay towards a Materia Medica of the United-States*, where the influence of this common plant in the cure of a peculiar herpetic affection, called the "James-River Ring-Worm," is particularly noticed. Since the publication of the work referred to, the Editor has received much additional information concerning the efficacy of the plant in this disease, which was formerly extremely common in some parts of Virginia, especially, it is said, on the upper streams of James-River.

III. *Case of Epilepsy, successfully treated by the Nitrate of Silver. In a letter to the* EDITOR, *from* P. K. ROGERS, *M. D., of Philadelphia.*

DEAR SIR,

I DERIVED, from sources of which I need not remind you (your lectures and hospital practice), a favourable opinion of the Nitrate of Silver, as a remedy in epilepsy. I have, accordingly, had recourse to that powerful article, in the few cases of this disease that have come under my management.

I take the liberty of stating to you the particulars of one case, which goes some way to prove the efficacy of the nitrate of silver in epilepsy.

On the first of February, 1804, N—— J———, the person to whom I allude, was seized with a fit of this disease. He is about thirty years of age, and follows the occupation of a plasterer. He is of a light and active habit. He supposes his memory is a little impaired: his friends think the activity of his mind is somewhat blunted. He had, for some years, been subject to violent attacks of epilepsy. There generally was, at first, an interval of four or five months between the paroxysms; but, afterwards, his disease recurred more frequently; so that, during the last year, he had seven attacks, which were very violent, and apparently dangerous.

In these attacks, an hourly reiteration of convulsions, alternating with coma, with, now and then, an imperfect exercise of his senses, commonly continued for two or three days. He suffered most from his disease in the winter season.

This morning (the day above-mentioned) he went out fasting, and laboured about an hour in removing snow from a path. Upon feeling a degree of faintness and vertigo, which he had always observed to be the precursors of an attack, he became alarmed, and hastened to his house. About eight o'clock, he was seized with a violent fit. I saw him at nine. I was informed, that the gentleman who visited him on former occasions employed bleeding and emetics, during the attack, without any manifest advantage.

Theory, either true or false, led me to adopt a stimulating plan. About half a drachm of the Balsam of Peru*, and twenty drops of laudanum, were dropped into a little warm coffee, and immediately administered, without the addition of sugar or mucilage. A return of the convulsions took place, about two minutes after he had swallowed the medicine. The balsam was repeated, in the same dose, without the laudanum, as soon as the convulsions and succeeding coma permitted. A warm regimen was directed. The reiteration of the fits was stopped. I will not assert, that the medicine just mentioned *was the real cause* of the patient's speedy relief; but it *seemed* to be the cause of that relief.

Such were the circumstances of this case of epilepsy, before the Nitrate of Silver was employed, as a preventive of the paroxysms. The patient had hitherto employed no metallic tonic for this purpose; but he had tried opium, assafœtida, valerian, without effect.

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* This particular stimulant I recollected to have been employed by Dr. Kirkland. Medical Surgery.

On the third of February, 1804, he commenced the use of the nitrate of silver, combined with opium. The medicine was exhibited in the form of pills, each of which contained one-fourth of a grain of the metallic preparation, and half a grain of opium. Half a grain, at first, and, afterwards, a grain of the nitrate of silver, was taken daily. He continued this medicine for six weeks, and, since he entered upon the use of it, he has had no return of his disease. It is now twenty-two months since his last paroxysm took place, unless he may have had one within the last month. It is hoped, therefore, that the medicine has, in this instance, effected a cure.

In two *other* instances, I have reason to believe, the same happy result would have taken place, had the use of the nitrate of silver been continued. But one of these persons (Mrs. A———) retired into the country, while under the use of the medicine; which, however, appeared to have done some good before she departed. The other laid it aside on the fifth day, because an increased dose, combined with a very small proportion of opium, produced much pain and uneasiness at stomach.

I am, Sir, &c.

P. K. Rogers.

Philadelphia, Jan. 2*d,*
1806.

IV. *Sketch of the Medical Topography of Onondaga, in the State of New-York. In a letter from Dr.* GORDON NEEDHAM *to Dr.* DAVID HOSACK, *and by him communicated to the* EDITOR, *through the hands of Dr.* WILLIAM CURRIE.

IN answer to your letter of the 16th of September, I make the following observations.

As to the situation of this country (viz. the western part of the State of New-York), it is, generally, level, and almost all the large Lakes have, on some part of them, extensive marshes. The smaller ponds have their shores surrounded with swamps and woods. This town of Onondaga has been thought to be one of the most unhealthy in all the western country. It contains the celebrated Saline-Springs, which are situated on the shore of the Onondaga-Lake, surrounded by a marsh, that extends for several miles. The inhabitants are numerous about this lake, and are very subject to a Bilious Remitting or mixed Fever.

They are liable to this fever at any season of the year, but it prevails most in the spring and the autumn. In the latter season, it is most prevalent from the first of August to the first of October. At this time, these marshes are dry in some places, while others are covered with water, filled with rotten moss and dead shell-fish. These putrid animal and vegetable substances fill the whole atmosphere with pernicious effluvia, to which we ascribe the fevers.

Persons attacked with the fever complain of the following symptoms: lassitude, a frequent inclination to yawn, an irregular sensation of cold, approaching to chilliness; a confusion in the head, delirium, violent pain in the head, redness of the eyes, heat and redness all over the surface; a quick and full pulse; nausea, vomiting and purging of bile, obstructed perspiration, high-coloured urine, voided in small quantity, and that attended with great pain in the region of the kidneys, &c.

The tongue, from the beginning, is covered with a mucus, which turns yellow and dark-coloured at the root, as the fever advances. The patients also complain of a soreness of the flesh, aching of the bones, &c.

The remedies which have been found most successful are the following, viz.: frequent bleedings, from one to four times; then antimonial emetics are essentially necessary. These remove the bile from the stomach; they promote perspiration, and open the bowels: important effects in the cure of these fevers. The bowels are then to be kept open with small doses of salts, castor-oil, clysters of milk and water, so as to work the bile from the bowels, as fast as it accumulates from the biliary ducts, giving large and repeated draughts of some weak, bland, diluting drinks, such as Sarsaparilla*, Spikenard†, Balm or Apple teas, &c.

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* Aralia nudicaulis, I suppose. This is a very common plant in New-York, and other parts of the United-States. It is often

During the paroxysm of the fever, I give small doses of nitre and tartar combined; say eight grains of the former, and one of the latter, for an adult, every one, two, or three hours, as the case may require. During the intermissions of the fever, I give wine and water, wine-toast, chicken broth, &c. With this treatment, we often obtain a solution of the fever by the fifth day, or, at most, the ninth day of the complaint. If we fail to effect this purpose then, the disease is apt to assume the type of a nervous or putrid fever, and carries off the patient, sometimes, between the fourteenth and eighteenth day. These putrid and nervous symptoms never take place in patients who have been sufficiently bled and purged in the first stages of the fever.

There appear to be such a heat and irritation through the whole course of the fever, that I have not used one pound of Peruvian Bark in my attendance upon more than one hundred patients, this present season. Bark, calomel, and jalap, the medicines which were once altogether relied upon, are now very little used in the bilious fever of this country. The means that are employed are simple, but the practice is successful.

Onondaga, October 16*th*,
1803.

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used as a substitute for the Sarsaparilla (Smilax Sarsaparilla) of the shops. Of the comparative useful powers of the two plants, I am unable to say any thing certain. Editor.

† No doubt, Aralia racemosa. This, also, is a very common plant in the United-States, growing chiefly in the hilly countries, and in very rich soil. Editor.

V. *Facts and Observations relative to the Bilious Remitting Fever of Loudon-County, in Virginia. Communicated to the* EDITOR *by Dr.* THOMAS SMITH.

DEAR SIR,

HAVING observed, with much regret, the ill effects of Venesection in the treatment of our epidemic (the Bilious Remitting Fever), and having kept a just register of all the cases of this disease that have come under my notice, from the first of March last to this date, I beg leave to submit to your examination the result of my observations.

I have had 110 cases. But, including relapses, after apparently complete recovery, I have had 380 cases. Of all this number, only five cases have had a fatal termination. These were,

1. A negro boy, who lived in a close hut, with six other persons, that laboured under the disease, at the same time. He was attended by Dr. H., and myself.

2. Miss A. B., who lost about twenty ounces of blood from her uterus before I saw her, which was on the 14th day of her disease, and three days before her death.

3. Mr. M. A., who received a wound in the cranium, when he was a child, which accident had subjected him to a temporary delirium, upon a small degree of exercise, ever since that period. I was absent during

the three last days of his illness, and, consequently, could not pay the necessary attention to him.

4 and 5. Mrs. E. W. and her child. This lady had been bled by her friends, before I saw her, on the supposition that she had the pleurisy; and during the four last days of her illness, she was, at my request, attended by another physician.——The child's recovery being despaired of by the nurse, before I saw it, very little medicine was exhibited to it.

In all the cases which I have mentioned, I only bled one: a few had undergone the operation before I saw them, and this had greatly tended to protract the cure. One case, in particular, I shall recite, as the symptoms that occurred seemed to indicate copious bleeding.

J. M., aged 20, of a robust and corpulent habit of body, was attacked with the bilious remitting fever, on the 29th of October. After three paroxysms (the remissions being pretty considerable, and accompanied by a moderate degree of perspiration), his friends thought proper to bleed him. An almost perfect paralysis of every extremity very shortly ensued, which lasted near two days. The remissions became inconsiderable, without the least moisture on the skin, and there was frequent delirium. His mouth was very foul, and his tongue black.

In this case, the most powerful sudorifics, pediluvium, &c., were tried, to no purpose. A free use of mercury and blisters was then resorted to; and, after a long and tedious illness, he recovered; but I am well satisfied, that he might have been restored to health in a few days, if he had not been bled.

As indirect debility of the exhalent vessels is evidently the cause of sweat in fevers; as this state of debility is reproduced and augmented by every succeeding paroxysm, and the vessels consequently made more lax and permeable to the perspirable matter, is it not manifest, that, if the system be much depleted before the exhalents are sufficiently debilitated (or compound debility produced therein), we shall ever find it difficult, if not impossible, to procure that most salutary of all evacuations, a free perspiration? But whether or no theoretical discussions will establish the fact, experience sufficiently proves it: *for I have very seldom been able to procure a free perspiration, in any case, when venesection was performed early in the disease;* and, if this operation is not proper then, surely it is not adviseable at all. I have, when called in one dangerous case, when the patient had been bled, repleted the system with nourishment, and thus procured perspiration after every other means had failed; and my patient happily recovered, though her fever was, at the same time, very considerable.

I must, therefore, beg leave to inform those practitioners who are such zealous advocates for venesection in fevers, that the best and safest way to diminish re-action is to remove the cause, which is not *excess of blood*, but *febrile infection.* Blood-letting can, in no way, extract the stimulus of infection from the system, than in proportion to the blood drawn; while the remaining portion is left to be acted upon by the heterogeneous substance (or infection), until its vital principle is destroyed, or a mortal wound is inflicted on some of the vital organs.

In the preceding cases which proved fatal, three had lost blood before I saw them. If venesection was necessary in any case, it was in that of M. A., on account of the injury done to his skull. Twelve or fifteen cases were those of pregnant women, two of whom were delivered in the fever; and the whole of this number recovered. To the truth of the above account, the gentleman whose name is hereto annexed, and who is my student, with myself, can certify.

THOS. W. SMITH.
EDWD. B. GRADY.

Loudon-County, Virginia,
Dec. 20th, 1805.

VI. *Facts, Observations, and Conjectures, relative to the Elephantine Bones (of different species), that are found in various parts of North-America. In a letter from the* EDITOR *to Mr.* G. CUVIER, *of Paris.*

DEAR SIR,

I KNOW that every new discovery in Natural History will give you pleasure. But I am persuaded, that your pleasure is always *peculiarly* great, when such discoveries tend to throw any light upon the curious subject of *extinct* species of animals: a subject to which you have devoted so much, and such successful, attention.

Without further delay, I hasten to inform you of a recent discovery relative to the Mammoth*, or American Elephant. If the facts be as I state them, I think you will not hesitate to consider the discovery one of the most interesting that has been made for a long time. I may add, that such a discovery was hardly to be expected, by the most sanguine or enthusiastic zoologist.

Very lately, in digging a well, near a salt-lick, in the county of Wythe, in Virginia, after penetrating about five feet and a half below the surface of the soil, the workmen struck upon the *stomach* of one of those huge animals, best known, in the United-States, by the name of the Mammoth. The contents of the viscus were carefully examined, and were found to be " in a state of perfect preservation." They consisted of half-masticated reeds (a species of Arundo, or Arundinaria, still common in Virginia, and other parts of the United-States), of twigs of trees, and of grass, or leaves.— " There could (says my informant) be no deception on the subject. The substances were designated by obvious characters, which could not be mistaken, and of which every one could judge : besides, the bones of the animal lay around, and added a silent, but sure, confirmation."

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* In compliance with the usage of my countrymen, I call this animal Mammoth, or Mammouth, though I well know, that this appellation is more properly bestowed upon another species of Elephant, the remains of which are very numerous in various parts of Asia : the Elephas primigenius of my excellent friend Professor Blumenbach, and your Elephas Mammonteus.

All the vestiges, which I have mentioned, were incumbent upon a stratum of limestone. From the number of bones already discovered, hopes are entertained, that a complete skeleton of this enormous animal, once so common in many parts of the New-World, may be formed.

The information, which I have communicated to you, I have just received from one of my correspondents in Virginia, Bishop Madison, the President of the College of William and Mary, in that state. The Bishop is a man of considerable attainments in science, and has long enjoyed the reputation of being one of the most amiable and respectable characters in our country. Mr. Madison's letter is dated (Williamsburg) October 6th; so that, you see, I have not, in this instance at least, lost much time in letting you know what we are doing, in the United-States, for your favourite study.

It may be proper to inform you, that the county of Wythe, in which the exuviæ were discovered, is one of the trans-alpine counties of the state: that is, it is situated to the west of the great ranges of mountains known, in our country, by the names of the Blue-Ridge (or South-Mountain*); the North-Mountain; and the Alleghaney-Mountain; and the spot may be about 200, or 230, miles from the *nearest* part of the Atlantic-Ocean. This county borders on that of Greenbryar, in which the bones of the Megalonyx, as Mr. Jefferson has denominated it, were discovered. I will only further add, that, in the view of the naturalist, this is one of the most interesting portions of Virginia, and, perhaps, of North-America. The floor of the country is limestone (different varieties of psadurium), rich in the impressions of numerous species of sea *testacea*, and other marine animals: the caverns abound in nitre, and in sulphates of soda and magnesia; while springs of various gaseous and mineral impregnations, and of different temperatures, present themselves almost every where. I say nothing of the manganese, and various other metallic bodies, which have lately been detected*.

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* Sometimes called the Blue-Mountain. This great chain has been confounded, by Professor Playfair, and other learned naturalists, with the Alleghaney-Mountain.

I shall not take up any of your time in endeavouring to prove, that the *soft* parts of animal bodies, such as the skin, the muscles, the stomach, &c., may be preserved, in a state of considerable perfection, for a great length of time. You, Sir, are well acquainted with the various facts, relative to this subject, that have been published by Dr. Pallas, and some other eminent naturalists. I will, however, take the liberty of referring you to the first part of my *Medical and Physical Journal*, pages 154—159, for a very interesting notice concerning the discovery of five skeletons of Mammoths, near the river Ohio. From this account, it would seem pretty certain, that so late as 1762, which was, in all probability, several centuries after the extinction of the species in America, the proboscis *(trompe)* of one of the animals was preserved: for the Indians, in their account of the discovery, said, that the head of one of the Mammoths was furnished "with a long nose, and the mouth on the under side." This long nose, I have no doubt, was the proboscis. Since the publication of the notice, to which I have referred you, I have observed, in Kalm's *Travels*, a circumstance which deserves to be repeated here. Speaking of an enormous skeleton, supposed to be that of an Elephant, which was found by the Indians in a swamp, "in that part of Canada where the Illinois live," the honest Swedish traveller says, that he was informed by an officer, who had seen the remains, "that the figure of the whole snout was still clearly visible, though it was now half mouldered*." The snout, as it is here called, seems to refer to the proboscis, or trompe. Indeed, the Swedish word "*snabelen*," in the original, leaves us in little doubt on the subject.

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* In the same tract of country, large quantities of sulphate of barytes have been found.

I have no reason to believe, that the skeleton, of which Kalm speaks, was one of those of which mention is made in my *Journal*. The contrary is more probable. Be this as it may, it would appear, from the double testimony which I have collected on the subject, that not only the bones, but even the long nose, or proboscis, of the American elephant, has been preserved, and seen, in some of the marshes of the country.

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* En Resa til Norra America, &c., af Pehr Kalm. Tom. III. p. 244. See, also, the English translation, by Dr. J. R. Forster. Vol. III. p. 11 and 12. London: 1771.

The salt-licks, or marshes, in which so many of the bones of the Mammoth have been found, seem very well adapted for the preservation of both the hard and soft parts of animal bodies. Some of these licks are *muriatic* marshes, or marshes impregnated with muriate of soda, and even at this day abound in Salicornia, Glaux, Triglochin, and other plants, which are rarely found at any great distance from such saline soils, which in America, as in other countries, doubtless, owe their origin to the sea. Other North-American salt-licks seem more impregnated with sulphate of magnesia, or epsom, than with muriatic, salt; while others of them, again, are very sensibly impregnated with sulphate of alumine, or with sulphate of iron. Lastly, some of the licks seem to be very little different from your sphagnum morasses in Europe, in some of which, it is well known to you, that the bones of a species of Cervus (allied to the Alces), and those of other animals, have been preserved, for a very great length of time. (See Note 1, at the end of this article). You will observe, Sir, that the Wythe exuviæ, recently discovered, were found " near a salt-lick;" and it is probable, that when we shall receive a more circumstantial account of the discovery, it will clearly appear, that the stomach, bones, &c., were exposed to the influence of the saline impregnation; and that it is to this that we are, in a considerable degree, indebted for their preservation: a preservation so precious to the lovers of Natural History.

We shall never, perhaps, be certain at what period the *species* of the Mammoth ceased to exist in America. We may, however, I think, confidently assert, that severed them in a much smaller number of places. It must not be concealed, however, that Mr. Peale's two skeletons were found in the latter tract of country; and some of the bones of a Mammoth have been discovered in the state of New-Jersey, at the distance of a few miles from Philadelphia.

It is, perhaps, worth observing, in this place, that the different kinds of licks, especially the muriatic marshes, and transparent springs of water impregnated with muriate of soda, are much more commonly met with in the western than in the eastern parts of North-America. I do not mention this as a *decided* confirmation of my position, that the Mammoth was more common in the trans-alpine, than in the Atlantic, or submaritime, parts of the continent: for it is, certainly, possible, that we may have discovered more of this elephant's exuviæ in the western than in the eastern countries *chiefly* because they were more likely to be preserved (owing to the greater number of marshes) in the former than in the latter countries. But I cannot help suspecting, that the Mammoth, like the bison, the elk, and the other animals formerly enumerated, resorted to the licks, for the purpose of *drinking* the saline water, and of *eating* the earth impregnated with it.

If future and more extensive researches should more clearly establish my position, relative to the diffusion of the Mammoth across the continent of North-America, it will be somewhat remarkable, that the bones of this animal have so seldom been seen in the eastern parts of

Asia, from whence I have no doubt, that many of the animals of America have been derived.

I am far, however, from supposing, that Asia has been the parental country of *all* the animals that have been found in the two continents and islands of the New-World*. But I have observed, and it is a circumstance much in favour of the hypothesis which considers Asia as the fountain from whence have proceeded *many* of the American animals, that where the same species of quadruped is common to these two portions of the earth, they are *generally* more common in the western than in the eastern districts of America. This rule is, perhaps, liable to *some* exceptions: but this is chiefly the case when the quadruped is found in Europe, as well as in Asia and America. Thus, I cannot assert, that the Beaver (Castor Fiber) is more common in the western than it is in the eastern parts of North-America. But, then, the Beaver, it will be recollected, is one of those quadrupeds which are common to Asia, to Europe, and to America.

Does not this fortunate Virginia discovery give us pretty good reason to believe, that at some future, and perhaps not distant, period, the labours of workmen, intent upon very different objects, will exhibit to us the Mammoth in a state not less perfect than that in which Pallas had an opportunity of contemplating the Rhinoceros, near the banks of the river Willioni, in the north of Asia? Let us cease, then, to deplore the inherent imperfections of zoological science on the score of *lost* species. Doubtless, *many species of animals have ceased to exist.* But of not a few of these we shall be able to ascertain the precise forms and characters (and even the *mores*, or manners); and thus, Sir, to assign to each its proper place, in that more finished view of the animal creation, for which your laborious researches, the researches of many of your countrymen, and of the learned in other parts of the world, are rapidly preparing us.

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* See my New Views of the Origin of the Tribes and Nations of America. Preliminary Discourse, pages ci, cii, ciii.

I fear I have fatigued you. But read on, to be assured of the high esteem with which I am,

Dear Sir,

Your friend, &c.

BENJAMIN SMITH BARTON.

Philadelphia, October 14*th*,
1805.

NOTES ON THE PRECEDING PAPER.

Note 1. *Page* 27. The licks, of which I have given some account, are resorted to by various species of animals, particularly Deer (Cervus virginianus), the American Elk (my Cervus Wapiti), and the Bison, or Bos americanus of Gmelin. It is a fact, not generally known, that the animals which I have mentioned not only *lick* the soil, and *drink* the water of these salines, but even *chew* and *swallow* the ground, in large quantities. Hence, our Indians designate some of the licks by a name which may be translated

" the chewing place."——Besides the animals already mentioned, horses are observed to be very fond of drinking the water of some of the licks. But, which is more remarkable, they are frequented by vast numbers of Wild Pigeons (Columba migratoria), and by a species of Psittacus. Some species of Crotalus, or Rattle-Snake, are also often observed about these places: but whether these reptiles drink the saline water, I cannot assert.——So far as I have yet learned, it is the *herbivorous* mammalia only that resort to the licks, for the purpose of drinking the water, and of licking and eating the earth. This circumstance ought not to have been overlooked, in the view of the question, whether the American Mammoth was an herbivorous or a carnivorous animal. By myself, indeed, it was not overlooked.

Note 2. *Page* 28. One David Ingram, an Englishman, assures us, that he saw Elephants in America; and we might, perhaps, repose *some* degree of confidence in his assertion, if he did not tell us, that he likewise saw wild animals, twice the size of our horses, formed like a grey-hound in their hinder parts; another quadruped, larger than the bear, without head or neck, having its eyes and mouth in its breast; and, lastly, the DEVIL, sometimes in the likeness of a dog, at other times in that of a calf!

VII. *Account of the Cervus Wapiti, or Southern Elk of North-America.*

THE following account of the Elk is extracted from the Editor's *Fragments of the Natural History of Pennsylvania*, Part Second, not yet published.

Cervus Major Americanus, or Stag of America. Catesby, Natural History of Carolina, &c.*, at the end of vol. ii. p. 28.

The Elk. Lawson's New Voyage, &c., p. 123.

Alces Americanus cornibus teretibus, or Round-horned Elk. Jefferson's Notes, &c., p. 96. Note.

The Elk. Carver's Travels, &c., p. 417, 418.

The American Elk. Bewick's General History of Quadrupeds, p. 112, 113†, with a good figure.

The Elk. See E. H. Smith, in the Medical Repository. Vol. ii. No. 11., with a plate, representing three of the animals.

Greater Stag. Pennant, MS. (See Note 1, at the end of this article.)

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* Edition of 1771.

† Newcastle upon Tyne: 1792.

Cerf de Canada? Memoires pour servir a L'Histoire Naturelle des Animaux. Second. Part., p. 231, &c., pl. 46.

The Alcos of New-Mexico? Clavigero's History of Mexico. Vol. ii. p. 287.

I proceed to give some account of a species of deer, which has been most strangely overlooked by the greater number of the systematic writers on zoology. Indeed, I cannot find that it is distinctly mentioned by any of them. This animal is generally known in Pennsylvania, and in other parts of the United-States, by the name of the Elk. Our hunters, and my countrymen in general, restrict this name exclusively to the species of which I am treating, and never, that I have heard, apply it to the Moose. As the moose, however, is well known, in Europe, by the name of Elk, it has been imagined, by some eminent zoologists*, that the animal which is called Elk in America, is specifically the same as the Elk of Europe. This similarity of name has, I believe, been the principal cause of that confusion, which is so conspicuous in the accounts which writers have given of the moose. They have confounded the last-mentioned animal and the American Elk with each other, and have so blended the natural history of the one with the other, that it is somewhat difficult to remove the confusion. (See Note 1.) I shall show, however, that they are two species very distinct from each other.

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* Zimmerman, Gmelin, &c.

The Elk differs in several very essential circumstances from the moose. I shall here mention a few of the principal of these circumstances, in connection with each other. Others may readily be collected from the following account of the animal. The moose is the largest animal of the two. (See Note 2.) In proportion to his height, he is much shorter than the Elk. His general colour is darker than that of the Elk. The horns of the moose are palmated, and destitute of brow-antlers; whereas those of the Elk are rounded, more like the horns of the common deer, and furnished with brow-antlers. The most essential or specific difference, however, between the two animals, consists in the form of the horns; yet, if I do not mistake, there is a variety of the Elk with horns inclining more to the palmated shape than those of the Elk which I am describing.

The American Elk is a beautiful and stately animal. In his general aspect he is much more nearly allied to the stag (Cervus Elaphus), and to the common deer of the United-States (Cervus Virginianus), than the moose is. The form of the head is extremely elegant, tapering to a narrow point. The ears are large. The eyes are very large and black. The neck is moderately large and slender. That of the male is furnished with a short mane, which, however, is larger in the winter than at other times of the year. The male is also supplied with a beard under his throat *(caruncula gutturalis)*, and upon his breast. The tail is very short. The general colour of the body, both in the male and female, is nearly the same. In the autumn, it is of a blueish grey-colour: in the winter, of a darker grey, which continues until the spring, when it changes to a reddish colour, or bright brown. This last colour it keeps during the summer season. The rump is of a pale yellowish white or clay-colour. This colour, which extends around the tail on all sides, for about six or seven inches, is, I believe, a constant mark; and, as it is not exclusively confined to either sex, may afford a good specific distinction in the description of the animal.

The female Elk, as well as the female moose, is entirely destitute of horns. The horns of the male are very large, being often at least five feet in height. I have heard of a pair which measured above six feet in height. They served the purpose of an arch, or gateway, to a gentleman's country-seat. I have already said, that the Elk's horns are not palmated like those of the moose, but that they are rounded. They consist of three principal divisions, viz., 1. the brow-antlers, which are called, by some of our hunters, "the altars;" 2. the two middle prongs, sometimes called the "fighting horns;" and 3. the horns, properly so called. Carver has remarked, that the Elk's horns have "all their teeth or branches on the outer edge*." It is, I believe, strictly true, that none of the prongs, or subdivisions of the horns, are on the inner edge. They are all either exterior, anterior, or posterior†. This arrangement furnishes a striking difference between the Elk and the common American deer.

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* Travels, &c. p. 418.

† "When the animal enters his third year, a single prong or point comes out on the inside of the *left* horn; the next year, a

The Elk sheds his horns annually. This, in Pennsylvania, is done towards the end of February, or the beginning of March*. By the end of April, the new horns are often a foot long. In June, they are still very tender, and, by the beginning of August, they have come to their full size. When the horns are young, they are covered with a fine hair, which gives them a velvet-like appearance: from which circumstance, the hunters call it the velvet-state. During the growth of the horns, this velvet or pile seems to excite an uneasy sensation in the animal, for he is often observed to rub his horns against trees, &c., by which means he removes the velvet.

The hunters assert, that, by castrating the Elk, they can " set," to use their own phrase, his horns: that is, if the horns be full grown, when the operation is performed, they will not be shed; and, if they are only young, they will be prevented from growing. If it be true, as is very generally asserted, that the operation of castration produces these effects in the common deer, or Cervus Virginianus, there can seem to be no cause of doubt concerning the effects of the operation in the case of the Elk.

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similar point on the inside of the *right* horn: and so alternately." Dr. Smith, in the *Medical Repository*, p. 171. I rather doubt the accuracy of this statement.

* Dr. Smith was informed, that the Elk drops his horns in May.

There is a curious structure in the head of the Elk, which deserves particular attention. Under the inner angle of each eye, there is an oblique slit or opening, which is, externally, about an inch in length. This opening is said to communicate with the nostril. Our hunters assure us, that " the Elk possesses the power, by strictly closing his nostrils, of forcing the air through these apertures, in such a manner as to make a noise which may be heard at a great distance." They say, they have " seen the wild animals do this frequently; and that the design of it is to alarm each other when they suspect any danger is near*." I cannot, from my own observation, call in question the philosophy of the hunters on this subject. I must suppose, however, that the use of the fissures is more complex than is imagined; and I rather doubt the explanation of the hunters. The structure which I have mentioned is not peculiar to the Elk. It has been observed in the fallow-deer, and in most of the species of the genus antilope. It seems, in these animals, to serve the purposes of an auxiliary breathing apparatus, and of an organ of smelling. A species of antilope, examined by Mr. Pennant, seemed, in smelling, to use the slits beneath its eyes as much as it used the nostrils themselves. In order to throw farther light upon the use of this slit, which in the antilopes is called *sinus lacrymalis*[*], it will be necessary, among other circumstances, to examine, with attention, the comparative swiftness of those species of deer and antilopes, which are furnished with, or are destitute of, this structure. Should it be found that the more swift-running species are furnished with it, the notion of its being an additional organ of breathing would be rendered more probable[†]. I do not offer this as a new explanation. There is a line in Oppian's fine work on hunting, which would seem to show, that this observing poet had suspected that the subocular sinusses of the deer were of use in respiration.

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* The above words, in inverted commas, are Dr. Smith's, as are also the following: " Mr. Campbell, of Richmond, Virginia, informed me, that in the skeleton head of an Elk, which he had seen, the opening under the eye communicating with the nosstril, was so large, that the thumb might be easily introduced into it." Medical Repository, p. 170.

> Τετράδυμοι ῥῖνες, πίσυρες πνοιῇσι δίαυλοι.
> *Quadrifidæ nares, quadruplices ad respirationem canales.*
> Oppianus De Venatione.
> Lib ii. l. 181. cum interpret. Conradi Rittershusii[‡].

On the outside of each of his hind legs, the Elk has a small vesicle, that contains a thin unctuous matter, which some of our hunters call the "oil." The vesicle they designate by the name of the "oil-spring." Of this oil and oil-spring, very extraordinary and improbable stories are related. The male is said to open the vesicle with his horns, as these begin to grow. The oil spreading over the young horns, is supposed to contribute to their nourishment, and protection from injuries. It is said, that the female makes no use of the oil, unless when she is wounded. In this case, she " opens the bag with her tooth, and applies the oil, by means of her tongue, to the wound*." In the rutting season, the Elk, we are told, throws his urine upon the oil-bag, which, being thereby inflamed, emits a strong scent, that enables the sexes to discover each other in the woods. There is some truth, mixed with a good deal of fable, in these several stories. I am sorry that I am not able to separate, as I could wish, the true from the false. The last mentioned circumstance, however, seems altogether unworthy of belief.

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[*] And *sinus subocularis*.

[†] Dr. Sparrman informs us, that the Antilope Oreas, or Indian Antilope of Pennant, is destitute of the *sinus lacrymales*. This species, I find, is a slow runner. Most of the antilopes are animals of great speed.

[‡] Lugduni Batavorum: 1597.

I cannot speak confidently respecting the geographical range of the Elk. As far as I have been able to collect any information on the subject, it appears to me, that this animal first makes its appearance, towards the northward, nearly in the same latitude in which the moose ceases to be common†. I am told that the elk inhabits the country between Lakes Michigan and Huron, but that it is unknown in the neighbourhood of Lake-Superior, where the moose is common. I can trace our animal about as far north as latitude 44°, or 44° 30′. Beyond this, I have no certain information of its existence. But it is highly probable, that it does ascend to a more northern clime. Possibly, some of the deer which were seen by Mr. Hearne, in his northern journey, were the Elk. Our information concerning the southern limit of the Elk is not much more correct. It was formerly a very common animal in Virginia, and is still found in the western parts of that state*. It is very common in the State of Kentucky, and in the back parts of North-Carolina. It is also found in the State of Tennessee. I can trace it about as far south as the latitude of 33°, in the western parts of Florida, and do not doubt that it descends still lower down. Whether it extends westward to the Pacific-Ocean, I have not learned. The diffusion of our quadrupeds, from east to west, across the continent, is one of the great *desiderata* in the zoology of North-America.

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* See Dr. Smith, in the Medical Repository, p. 173.

† " I could never (says Mr. Jefferson) learn that the round-horned Elk has been seen further north than the Hudson's River." Notes, &c. p. 95.

The Elk feeds upon a great variety of vegetables. He eats grass, nettles, mosses, and the bark, leaves, and buds of different trees and shrubs. In the winter, when the ground is covered with snow, he is observed to be particularly fond of the tender twigs of a tree, which is sometimes called Moose-wood, and Elk-wood, and Soft Maple. This is the Acer Pennsylvanicum. He is fond of the leaves of the Sambucus canadensis, or Canadian Elder. He eats acorns, and a plant called Trip-up, and Moose-wood. I presume he also eats the leaves, or other parts, of the Oil-nut: a singular shrub, which inhabits the mountains of Pennsylvania, and other parts of the United-States. This vegetable is called, in Pennsylvania, Elk-nut*. I have not been able to learn, whether, in his wild state, he eats, as the common deer does, the different kinds of Kalmia, or Laurel, and the Rhododendron. There can be little doubt, however, that he does. One, which I had an opportunity of seeing, in Philadelphia, seemed very fond of the leaves of the Kalmia latifolia, or Broad-leaved Laurel, and those of the Rhododendron maximum, or Great Pennsylvania Mountain-Laurel. Some of the hunters say, he can eat, with impunity, these poisonous plants, because he has no gall-bladder. This explanation will not satisfy philosophers. (See Note 3.) The same Elk (a female) greedily devoured the leaves and small branches of the Weeping-Willow (Salix babylonica), the leaves of Lilac (Syringa vulgaris), and other plants. She refused the leaves of the Podophyllum peltatum, or May-Apple. She was fond of oats, and, when young, as I was informed, showed an evident attachment to milk, and to sweet cider; but would never, like too many of the hunters of Elk and other animals, drink cider-royal, or any thing spirituous. It is probable, however, that the Elk, as well as the moose†, would, without much difficulty, be brought into the bad habit of drinking, and getting drunk. The natural habits of many animals are easily changed. In particular, it is remarkable with what facility they are brought to eat and drink certain articles, which, in their wild state, they could not have procured.

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* Beverley, Jefferson, &c.

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* It is the Pyrularia puberula of Michaux.

† See Pennant's Arctic Zoology. Vol. i. p. 24.

The Elk, like the buffalo, the deer, and other animals, frequents the salines, or salt-licks, as they are called, for the purpose of licking the saline earth. I believe all these animals not only lick the saline matter, but even eat the earth impregnated with it. Within the memory of many persons now living, the droves of Elks which used to frequent the salines near the river Susquehanna, in Pennsylvania, were so great, that for five or six miles leading to the licks, the paths of these animals were as large as many of the great public roads of our country. Eighty Elks have sometimes been seen in one herd, upon their march to the salines.

The rutting season of the Elk is in the months of August and September, at which time the horns of the male are in their greatest perfection. During this season he is very furious, and makes a disagreeable, and, to those not accustomed to it, a frightful noise, between the bray of the stallion and the bellow of the bull. At the commencement of the rutting season, he is very fat, but, when it is over, he is extremely lean. His penis is remarkably large, as is the vagina of the female. Towards the end of May, or the beginning of June, the female brings forth her young. She has sometimes two, but, more commonly, only one*. The hunters call the young Elk, the "calf," as they call the mother, the "cow."

The Elk has a strong smell, insomuch that some of the hunters pretend, that they know, from the smell, when they enter those districts of country which are inhabited by this animal. The Indians say, this odoriferous perspiration is offensive to the common deer, and that, therefore, the two animals are seldom numerous in the same neighbourhood. It is more probable, I think, that the Elk, by his superior force, compels the deer to keep at a distance from him. Certain it is, that the two species show no peculiar attachment to each other. I believe it is true, as Lawson has asserted, that they never couple with each other†.

The Elk is a very timid and retiring animal. His favourite abodes are the thickest forests, and savannas abounding in grasses. In both these situations, he is often seen in company with the buffalo, and sometimes with the carrabou and moose. He seems to delight in the society of the first of these animals. He is fond of wallowing in the mud, like the hog. He is an animal of great fleetness. His gait is a trot, and when pursued by the hunter, he has been known to trot at the rate of sixteen or twenty miles an hour. His hoofs being much cloven, he makes a great clattering with them.

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* Dr. Smith was informed, that the female, "generally brings forth twins;" and that "it seldom happens but that one is male, and the other female." Medical Repository, p. 172.

† A New Voyage, &c., p. 123. Speaking of the elk, Lawson says: "Some take him for the red deer of America; but he is not; for, if brought and kept in company with one of that sort, of the contrary sex, he will never couple."

If we may depend upon the reports of our hunters, derived, it is probable, from the Indians, the Elk lives to the age of sixty or seventy years. I suspect, however, that very little confidence should be placed in information of this kind. The age of animals is one of the greatest *desiderata* in the science of zoology. I may add, that the *cervina senectus**, or old age of the stag, is an ancient fable†.

The Elk might be rendered a very useful animal. When taken young, he is easily tamed, becoming an inoffensive and manageable creature. It is said, these animals have been used in sleighs, like the rein-deer, in some parts of Upper-Canada. I cannot learn, that our Indians have ever domesticated any of them. There is, however, a circumstance mentioned by Adair, which would, at least, lead one to suppose that the Indians, in some parts of America, have actually seen the Elk in a domesticated state. Some of the southern tribes call this animal *Híssooba*, which signifies " the horse that carries a burthen." This, as Adair observes, suggests the idea, " that they formerly saw Elks carry burthens*." Perhaps, the Indians may have seen the Elk employed, as a beast of burthen, by the Spaniards, to the west of the Missisippi. If the Alcos of New-Mexico be our Elk, as I suppose it is, this suspicion is rendered more probable: for we are told, that that animal has been trained to the chariot, instead of the horse†.

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* Juvenal, Satira xiv. l. 251.

† See C. Plinii Secundi Naturalis Historiæ. Lib. viii. cap. xxxii. See also Oppian, De Venatu. Lib. ii. l. 291, &c.

The flesh of the Elk is deemed good eating. The Indians, who are certainly great economists with regard to their food, eat the tender horns of this animal, as well as its flesh. The horns are, no doubt, nutritious, as they are very gelatinous, and abound in blood. Some of the white people have long been accustomed to make an excellent glue from them, whilst in this tender state.

The skin of the Elk, when dressed, makes durable waistcoats and breeches for labouring people.

Superstition and quackery seem attached to savages, and to people in a rude state of society, in every part of the world. The Indians are of opinion, that the horny matter of one of the hind hoofs of an Elk, is a remedy against fits. I am not able to say, what is the precise mode of preparing this important anti-epileptic medicine. Mr. Pennant (after Charlevoix) says, the Indians use the hoof of the moose in the same disease, and that they apply it to the heart of the patient, "make him hold it in his left hand, and rub his ear with it*." It is difficult, and, perhaps, would not be important, to discover the origin of these crude notions and wild practices. If it be true, that the Elk ever employs the oil of his hind legs as a remedy in any of his own diseases, it would not be unnatural to conjecture, that the savages have derived the first hint of the use of this animal's hoof in epilepsy from his singular practice of physic†.

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* The History of the American Indians, &c. p. 113. London: 1775.

† "The alcos of New-Mexico (says Clavigero) are of the size of a horse. There was a gentleman in the city of Zacatecas, who made use of them for his chariot, instead of horses, according to the testimony of Betancourt." Clavigero's History of Mexico. Vol. ii. p. 287.

Some of the Indians are accustomed to hang about their necks, as tokens of the success they have had in hunting Elks, two particular teeth of every one of these animals they have killed. This practice also, I suppose, is the result of some superstitious opinions concerning our animal.

The Indians, in many parts of North-America, are fond of naming their rivers, mountains, towns, &c., after the wild animals of the country. They have not forgotten the Elk. Thus, one of the towns of the

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* Arctic Zoology. Vol. i. p. 22.

† It is a very ancient notion, that different parts of the stag, such as the horns, the lungs, the blood, &c., are antidotes to many of our diseases, as pains of the head, cough, spitting of blood, &c., &c. The curious reader may amuse himself by consulting, on this subject, the writings of the learned Roman naturalist, Pliny. Naturalis Historiæ. Lib. xxviii. cap. xiv, xvi, xviii, &c.

Delawares is called *Chingleclamoose*, which signifies the "Little Elk's Eyes." The river which we call Muskingum, the same Indians call *Moosekingum**, or "Elk's Eyes," because they observed on this river (I suppose, at the time they took possession of it) a number of Elks staring. At some future period, when the whole of the great tract of country beyond the Alleghancy-mountains shall be inhabited by a civilized and industrious people; when the banks of the Muskingum shall be decorated with towns and cities; and its waters covered with vessels transporting the productions of the upper country, through the Ohio and the Missisippi, to the West-Indies, and to Europe, and, perhaps, to India, it will be curious (and to the naturalist pleasing) to reflect, that this river received its name from an animal which, at the period I allude to, will hardly be found wild within the limits of the United-States.

As the Elk has not, to my knowledge, been described by any systematic writer on zoology, I have assumed the liberty of giving it a specific name. I have called it WAPITI, which is the name by which it is known among the Shawnees, or Shawnese-Indians. I should have preferred the specific name of *Moose*, or *Moos*, by which this animal is more generally called by our Indians. But this name, by interfering with the commonly received apppellation of the Cervus Alces, would only serve to introduce some confusion into the nomenclature of our quadrupeds.

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* Perhaps, Moosekingung.

The Wunaumeeh-Indians call the Elk, *Linimuus?* and *Moose*, or *Moos*: the Monsees, *Ach-túch?* the Machians, *Mooth?* the Chippewas, *Mi-che-wey*: the Messisaugers, *Moos*: the Ottawas, *Me-sche-we*: the Miamis, *Mon-so-a?* the Shawnees, *Wa-pi-tí*: the Nanticokes, *Moos*: the Mohawks, *Soo-noo-oo-wah-ne*: the Oneidas, *Cho-wauh-lo-wau-na*: the Onondagos, *Tschuckáragok*: the Tuscaroras, *Cho-wauh-ro-wauh*: the Cayugas, *Skau-hets-ho-wau*: and the Wyandots, *Tsun-dar-ren-tah*.

GREY MOOSE.

Mr. Dudley, in his account of the American Moose-Deer, remarks, that there are two sorts of Moose, "the common light Grey Moose, by the Indians called Wampoose," and "the large or Black Moose," which is the Cervus Alces. The former, he observes, "are more like the ordinary deer, spring like them, and herd sometimes to thirty in a company*." I am somewhat at a loss to determine what animal this Grey Moose is. Mr. Pennant takes it for the stag, or Cervus Elaphus†. I think it more probable, however, that it is the American Elk, or Cervus Wapiti. Mr. Catesby, indeed, expressly informs us, that the last-mentioned animal is called the Grey Moose, in New-England*. Mr. Dale also is of opinion, that the Grey Moose, mentioned by Mr. Dudley, is the same as the Elk, or Cervus Wapiti†. This point is not completely ascertained. I cannot, therefore, at present, assert, with full confidence, that the Grey Moose is a native of Pennsylvania.

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* The Philosophical Transactions, abridged. Vol. vi. Part iii, p. 16.

† Arctic Zoology. Vol. i. p, 19.

NOTES ON THE PRECEDING PAPER.

Note 1. *Pages* 36, 37. Mr. Pennant (*Arctic Zoology*, vol. i. p. 19) says, " the Elk and the Moose are the same species." My late amiable and ingenious friend, Dr. Elihu H. Smith, has supposed this to be a mistake. (See *Medical Repository*, p. 169.) I apprehend, however, Mr. Pennant to be perfectly correct in his observation, at least if it be admitted (and this is generally admitted) that the moose of America is the same animal as the Cervus Alces. Mr. Pennant, it is evident to me, intended nothing more, by asserting the identity of the Elk and moose, than the establishing of the fact, that the moose is the Cervus Alces, or Elk of Europe and Asia. Of the American Elk (my Cervus Wapiti) he knew nothing when he published his *Arctic Zoology*, in 1792. Towards the close of that year, I transmitted to my ingenious friend a number of manuscript notices

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* Natural History of Carolina, &c., at the end of vol. ii. p. 28.

† See Baddam's Memoirs of the Royal Society, &c. Vol. x. p. 260.

Tabula, Avium alibi hiemantium tempore vernali adventum commonstrans.

	1792.	1793.	1794.	1795.	1796.	1797.	1798.	1799.	1800.
Charadrius vociferus	Mar. 19	Mar. 4	Mar. 15	Mar. 9	Mar. 6		Mar. 27	Mar. 23	
Turdus migratorius	21	16	19	22	14	Mar. 8	{ vidi Jan. 14 { cantat Mar. 27		Mar. 30
Anas Canadensis	23	15	21	21	24	14	Apr. 8		31
Motacilla Sialis	16		17	22	26	13	Mar. 25	24	28
Gracula Quiscula	24	7	17	24	27		30	Apr. 7	13
Muscicapa fusca	27	21	16	25	24	23	26	1	Apr. 3
Alcedo Alcyon	Apr. 2	Apr. 3	Apr. 13		Apr. 7	Apr. 5	Apr. 15	6	10
Fringilla tristis		24	26				19		
Hirundo urbica	4		16		12	Mar. 30	Mar. 31	6	7
Oriolus phœniceus	6	2			7				
Picus auratus		1	13		7		30	15	17
Hirundo purpurea	21	1	26						14
Caprimulgus americ.		Maj. 14		Maj. 12	2		Apr. 26	17	2
Larus ridibundus	29	3	29	Apr. 19	27	Apr. 27	Maj. 2	27	Maj. 3
Hirundo rustica	30	2	26	21	23	29	Apr. 27	Maj. 4	3
Lanius Tyrannus	Maj. 7	12	Maj 11	Maj. 10	Maj. 11	Maj. 8	Maj. 3	15	14
Emberiza oryzivora		16	16	12			16		13
Turdus rufus	7	4	8	6			Apr. 29		
Oriolus Baltimoré		9	10	12	16		Maj. 5	15	14
Muscicapa carolinensis		12							

IX. *Notice of the Botany of the White-Mountains, in the State of New-Hampshire.* *By the* EDITOR.

IN the first volume of this *Journal*, some mention was made of an ascent of the White-Mountains, in the state of New-Hampshire, by Mr. William D. Peck, and the Reverend Dr. Menasseh Cutler. It is there observed, on the authority of the last-named gentlemen, that " a species of Erica, or Heath, is said to be one of the plants which they found, in their botanical excursions, on the mountains. Should this prove to be the case, it will appear, that North-America is not, as has been supposed, wholly destitute of this family of plants, both the species and individuals of which are so extensively diffused through the old world*."

Since the publication of the above notice, I have received a letter from Dr. Cutler, in which he informs me, that Mr. Peck has found the plant " to be a species of the Andromeda†."

From Mr. Peck I have also received a letter, an extract from which, as throwing some light upon the *Alpine Flora* of our country, I here insert.

" I have not had time to draw up any account of the journey to the White-Mountains. Dr. Cutler and myself collected a considerable number of plants, but I unfortunately lost half of mine, in descending a gulley. While we were labouring up the mountain, I twice exclaimed, a Heath! and was as often disappointed. The first shrub I took for one was Empetrum nigrum: the other I believed to be an Erica, till my arrival at home. It seems more allied to Andromeda; its leaves are nearly of the size and figure of those of our Hemlock-Fir.

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* Vol. i. Part 1. Pages 164, 165.

† Letter dated Hamilton, Massachusetts, July 8th, 1805.

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"I found Azalea procumbens and Azalea Lapponica, and I am almost sure of Diapensia Lapponica. Dr. Cutler mentioned his having seen something which appeared like a Tulip, when he was on the mountains formerly. We had the good fortune to meet with it, and it proved Bartsia pallida. We found Vaccinium oxycoccos (not macrocarpon); some other species of Vaccinium; a small shrub, in fruit, which seems a Kalmia, and a few other plants. On the very summit, I collected a Clerus formicarius, and one other species of the same genus. In the woods, at the foot of the mountain, some of our company collected a fine specimen of Michaux's Streptopus, in fruit, but we could not save it*. Some of these plants have never before been collected, or in any other place, I believe, in the United-States, which indicates that the White-Mountains are the highest in the United-States."

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* All Michaux's species of Streptopus are natives of the mountains of Pennsylvania, Virginia, and other parts of the United-States, where they were (if I do not mistake) first discovered by the younger Mr. Marshall, who named the genus BARTONIA. EDITOR.

X. *Facts and Observations concerning the Disease of Rust, as it affects the Wheat, and other Cerealia. In a letter to the* EDITOR, *from his Brother, Mr.* RICHARD PETERS BARTON, *of Frederick-County, in Virginia.*

YOU are desirous, I find, to obtain information relative to the Rust, and have proposed several queries in regard to this disease, which I will answer, as far as I am able.

The evil here was greater than was supposed, when you left us. Many crops were nearly lost, and few escaped without material injury.

The information you received, that the Shanandoah lands are subject to rust, is correct. It is also true, that all the river-lands in Virginia are subject to the disease. In short, it is the evil of all our lands lying in low and moist situations, especially such as lie contiguous to swamps and marshes.

This disease appears to me to be intimately connected with an *excess* of moisture combined with *immoderate* heat: for neither, without the agency of the other, will produce it. A succession of rains, from the beginning of June until harvest (the period when the rust generally prevails), will not produce the disease, if the weather be pretty cool, and the air not stagnant. Lively currents of air accompanying rain, or immediately succeeding it, will, I believe, *always* prevent rust. Neither will exces.

sive heat, if the air be dry, generate it. But should much rain be followed by that state of air which we call close, sultry, and damp, and which we find so remarkably oppressive to our feelings, the rust is almost certain to *strike* (as the farmers term it) the wheat. Nor is it necessary that *much* rain should precede the disease: on the contrary, heavy fogs, or very copious dews, accompanied, or *immediately succeeded* (while the wheat is wet) by great heat and a calm state of the air, more frequently generate rust than immoderate rains.

Such a state of the air more commonly prevails on the margins of rivers, marshes, swamps, mill-ponds, very flat or bottom-lands, than elsewhere; and it is lands thus situated that are most subject to the disease of rust.

In the southern parts of Virginia, where the heat is frequently very great, even as early as the middle and latter end of May, the rust sometimes destroys the wheat in the *boot* (as we term it); that is, before the heads have fully put out: but more frequently it occurs when the heads are completely formed, and in blossom, or in the milky state. On this side of the Ridge*, I have never known it strike the wheat earlier than the middle of June: more commonly from the 20th to the latter end of the month. In the latter case, injury is not *materially* done, except to very late wheat, or such as had not the grain completely formed. At this period, if the rust be violent, we find particular spots, in our best and most forward fields, injured. These spots are generally flat and moist, where the plants stand too thin and scattering, and, in consequence of being thus thin, have too much stalk and leaves; or under the shades of trees, or round the margins of the field.

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* The Blue-Ridge, or South-Mountain.

In all these cases, the plants will be greener, and appear to possess a greater degree of succulency, than in other parts of the field. In short, every cause which retards the maturity of the grain, renders it more liable to rust. In this way, it is highly probable, that plastered wheat will sometimes sustain injury from that cause. Plaster, certainly, does render the plants more vigorous and succulent, and thereby retains them longer in a green state. The reverse is the case with common manures: for instance, dung. If partial spots in a field be dunged, previous to seeding the land, those spots will come first to maturity, and rarely (if ever) will such spots be rusted. I will venture to account for these different effects. Dung is applied in the fall, and, in consequence of that, produces a thick crop. This it does two ways: first, by invigorating the plants, and multiplying their branches; and, secondly, by preventing the effects of severe frosts, which generally destroy, in the course of the winter, a large proportion of the plants; frequently one-half. Even dry straw, or dry weeds, or brush-wood, strewed upon the surface of the wheat, in the beginning of the winter, will preserve it from the injuries of frost. Plaster is generally applied in the spring; but even if the application were made in the fall, I do not think (from some experiments which I have made), that it will guard the grain from the effects of frost, in any *powerful* degree. Perhaps, by invigorating the plants, the roots may take a stronger hold in the soil, and thereby be enabled to resist the effects of frost, somewhat better than unplastered wheat.

Frederick-County, August 28th,
1805.

FIRST SUPPLEMENT

TO THE

PHILADELPHIA

MEDICAL AND PHYSICAL JOURNAL.

SECTION SECOND.

MISCELLANEOUS

FACTS AND OBSERVATIONS.

NATURAL HISTORY.

ZOOLOGY.

Mammaliology.

1. IN a late number of the *Journal*, it is observed, on the authority of Dr. Samuel Brown, " That there has recently been discovered, in one of the nitrous caves" of Kentucky, " the cranium of a large species of Sus, or Hog, in a state of excellent preservation*." This cranium, having lately been transmitted to the American Philosophical Society, has been carefully examined by Professor Wistar, who has very satisfactorily shown, that it is the cranium of the Sus Tajacu, or Pecary. From this individual fact, it would not be safe to deduce any inference relative to the geographical range of the Pecary, in former times: but many facts, which the Editor has collected, induce him to believe, that this species of

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* Vol. ii. Part 1. Page 158.

hog was once very common in the tract of country between the Missisippi and the Atlantic-Ocean.

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2. A very singular species of Mus, nearly allied to the Mus bursarius of Dr. Shaw, is very common in the sandy tracts of Georgia and Florida, where it is best known by the names of Salamander and Earth-Rat. The Editor, who has had an opportunity of examining a living specimen of this animal, has satisfied himself, that it is the *Tucan* of Hernandez; and the *Tuza* or *Tozan* of Clavigero. It is pretty well described by the first of these writers, who seems to have studied, with some attention, its peculiar manners. It feeds on grain, roots, and other vegetable matters, and, it is believed, is one of the *species lethargicæ*, or animals which pass a portion of the winter season in a torpid state.

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3. Another species of Mus, much larger than the Tuza, and like it furnished with capacious cheek-pouches, is a native of the country west of the Missisippi, about latitude 38°. Of this species, however, very little is yet known.

* * *

4. A species of Mus, nearly allied to the Mus arvalis, is very common in the vicinity of Philadelphia,

where it proves very destructive to the potatoes (Solanum tuberosum), and to many other useful vegetables. It seems not to be described by any naturalist.

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5. The Sorex minutissimus of Zimmermann has been discovered in the *trans*-Missisippi part of the United-States, in the country that is watered by the Missouri. It is the smallest known species of the family of mammalia, and is one of those animals that are common to Asia and to America. The discovery of this little quadruped seems to furnish a new argument in favour of the theory, that the continents of North-America and Asia were once united to each other: a theory that is supported by many very impressive facts.

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6. A new species of Sorex has been discovered in the vicinity of Philadelphia. It may be called the Black Shrew, and, like some of the other species of the genus, emits an extremely fetid odour from its body.

* * *

Ornithology.

7. A species of Plotus, very nearly allied to the Plotus melanogaster of Linnæus, is sometimes seen

as far north in the United-States as the latitude of 39°. This, it is probable, is the Snake-Bird of the people of Carolina and Georgia.

* * *

8. It has lately been discovered, as the Editor is informed by one of his correspondents, that common charcoal, broken into small pieces, contributes much to the fattening of domestic poultry; at the same time, that their flesh, by such food, is rendered whiter, and more sapid.——Hogs, likewise, are fattened by the same vegetable substance; and a portion of this article, mixed with their ordinary food, is found to be very efficacious in preventing and curing a particular and dangerous disease, to which these useful quadrupeds are, at certain times, liable. When labouring under this disease, which is perhaps a kind of *Pica*, the poor animals greedily devour not only pieces of dirt, of different kinds, but even their own excrements.

* * *

Amphibiology.

9. The Lacerta orbicularis of Linnæus is found native within the limits of the United-States. It is pretty well figured by Hernandez, whose fidelity, in many instances, cannot be too much praised. A living individual of this species of Lacerta has been in the Editor's possession for some time. Like many other species of the genus, it passes a portion of the

year in a torpid state, during which time it eats nothing. But even while awake, it is capable of subsisting, for some months, without any other nutriment except what it receives from an atmosphere loaded with moisture.—A full account of this curious animal will be published in the second part of the sixth volume of the *American Philosophical Transactions.* It is proposed to call it Lacerta *Tapajaxin.*

* * *

10. A living specimen of the Siren lacertina of Linnæus* has been in the possession of Mr. Peale, for several months. It is two feet and a half in length, and is endowed with great strength. Its toes are not furnished with nails *(ungues)*, as is asserted to be the case, in the descriptions of the animal published by Gmelin, Shaw, and other naturalists. They are perfectly mutic, and rounded at the ends.

The Siren breathes both by its mouth and nares. The individual, just mentioned, is supported, in a large jar of water, upon pieces of meat, and other animal matters; and sometimes it eats grass. In its native country, it is said to live upon living serpents, &c. *It is, unquestionably, a finished animal, or an animal in its ultimate state, and not a mere larva*, as Mons. La Cépède, Mr. Schrebers, and other eminent naturalists have imagined.

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* Muraena Siren of Gmelin.

eight feet, and nine inches, and to the diameter of twenty inches and a half, exclusive of the bark.

The Cotton-tree receives its name from the very large quantity of *pappus*, or cottony substance, which the female flowers afford. This substance may, doubtless, be converted to very useful purposes. Whether it is capable of being employed, in any case, as a substitute for the real cotton, or produce of the species of Gossypium, remains to be ascertained. At some future day it will, in all probability, be employed in the manufacture of papers, of certain kinds.

The President informs the Editor, that the twigs of this tree, chopped down, afford an excellent food for horses, which they have often been known to prefer to bran of Mays, or Indian-corn, and similar articles. Captain Merewether Lewis, and his party, while engaged in exploring the country along the Missouri, have often witnessed the good effects of the Cotton-tree, as a fodder for their horses, especially in the winter-season.

15. From the country of the Five-Nations, the Editor has received the seed of a species of Tobacco, which is said to be essentially different from the common cultivated Tobacco, or Nicotiana Tabacum. It is a more humble plant; its flowers are yellow; and its leaves are less narcotic than those of the To-

bacco in common use. This species, if we may depend upon the traditional story of some of the Indians belonging to the confederacy, was found ***native*** within the limits of their country. It is deemed a kind of *sacred* Tobacco, and is the only species which is permitted to be burnt, or smoked, on the days of annual festival.

MINERALOGY.

16. The Editor is informed, by his friend and pupil, Dr. Thomas Walmsley, that specimens of native Sal-Ammoniac, or Muriate of Ammoniac, have been discovered in the neighbourhood of Williams-Port, in the county of Washington, and State of Maryland. A full account of this interesting discovery will be given in a future part, or number, of this *Journal.*

FIRST SUPPLEMENT

TO THE

PHILADELPHIA
MEDICAL AND PHYSICAL JOURNAL.

SECTION THIRD.

REVIEW,

AND

LITERARY INTELLIGENCE.

I. THE Editor of this *Journal* has already announced* his intention of publishing a BOTANICAL work, to be entitled *Prodromus of a Flora of the States of New-York, New-Jersey,* PENNSYLVANIA, *Delaware, Maryland, and Virginia.* Agreeably to his promise, he now proceeds to give a general idea of the plan of the work, the first volume of which, including the plants of the first ten or twelve classes of the sexual system, he flatters himself he will be able to publish some time in the course of the year 1807.

This Prodromus will be comprized in (at least) two large volumes (royal) octavo, and will contain the descriptions of a much greater number of plants than are enumerated in the whole *Flora Boreali-Americana* of Michaux. Many of the plants are entirely new species, and there are some new genera.

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* Vol. ii. Part 1. Page 178.

In this work, besides the more purely botanical part of the subject, much attention will be paid to the dietetic, the medical, and other uses of the various vegetables that are described; and the whole will be accompanied by a view of the general aspect of the six States which have been mentioned; their comparative proportion of land and water, of mountainous or high and low ground; of calcareous and other soils; their temperature, &c.

A series of plates, from original drawings, will also accompany the work; and these plates will be engraven by able artists, both in Europe and in America. Many of the drawings are already prepared: some of them are the production of that able artist, Mr. Turpin, who passed some time at Philadelphia, and at present resides at Paris.

The following extracts from the *Prodromus* may serve as specimens of the manner in which the Editor has treated some parts of his subject.

MITCHELLA. *L.*

Gen. Pl. edit. Schreb. n. 174. *Juss. p.* 208.

Cor. 1-petalae, superæ, binæ, eidem germini. *Stig.* [illegible] *Bacca* bifida, 4-sperma.

MITCHELLA *repens. L. Sp. Pl. p.* 161. *Willd.* [illegible] 1. *p.* 617. *Gmelin, Syst. Nat.* 2. *p.* 245. [illegible] *Arbust. p.* 92. *Aiton, Kew.* 1. *p.* 148. [illegible] *Flor. Bor. Amer.* 1. *p.* 86.

[illegible] repens) foliis subovatis, floribus albis, bac- [illegible] *Walter, Carol. p.* 85.

Mitchella. *Amoen. Acad.* 3. *p.* 16.——Chamædaphne. *Mitch. Nov. Gen.* 27.

Lonicera foliis subovatis, germine bifloro, corollis interne hirsutis, stylo bifido. *Gronov. Flor. Virg. p.* 18.

Syringa baccifera sive Clematis Daphnoides repens aquatica, foliis parvis, floribis albis gemellis unicam baccam rubram carnosam duobus umbilicis præditam continentibus. *Clayt. n.* 28.

Syringa baccifera, Myrti subrotundis foliis, floribus albis, gemellis, ex provincia Floridana. *Pluk. Amalth.* 198. *t.* 444. *fig.* 2. *Catesb. Carol.* 1. *p.* 21. *t.* 20.

Baccifera mariana clematitis daphnoidis minoris folio. *Petiv. Mus.* 363. & *Gazoph. t.* 1. *f.* 13.

Chamæpericlymeni foliis plantula marilandica, flore in summo caule unico tetrapetalo. *Raii Suppl.* 656.

Mitchella. Partridge-berry. *Cutler, Mem. Amer. Acad. vol.* 1. *p.* 410. *Hearne, p.* 454.——Partridge-berries. *Mather, Phil. Trans. abridged, vol.* 5. *part* 2. *p.* 160.——Partridge-berry? *Williams, Vermont, p.* 68.

Anglis, Creeping Mitchella. Creeping Evergreen Mitchella.

Europo-Americanis, Partridge-berry. Turkey-berry. Ground-Ivy.—Deer-berry? in North-Carolina.—Indian Tobacco? in some parts of New-England.—Poison-Berries.

Indigenis (certain tribes of New-England), Poke? *See the article Arbutus Uva ursi.*

In woods, on mountains, generally in wet or moist, mossy and shaded situations.

"Hab. in Carolina, Terra Mariana, Virginia." *Michaux, l. c.*——In PENNSYLVANIA, and in every state of the American union. Indeed, it is difficult to say, in which it is most abundant. Ph*.

Perhaps, few of the North-American plants have a more extensive range, from north to south (and, probably, from east to west), than the Mitchella repens. It is very common in the New-England states, and I think it is found in Greenland; for I take this to be the plant to which Crantz alludes, in the following words: It "has little round smooth leaves, always in pairs, and supporting a little downy flower between them. They say this serves for the food of the rein-deer†." The Mitchella is common in the country round Hudson's-Bay, and it extends, at least, as far south as Georgia, where it is known by the name of Turkey-Berry.—— It would seem, therefore, that we are safe in assigning to this plant, a range of at least forty degrees of latitude. Of its range from east to west, I cannot speak with so much confidence: but we well know, that the Mitchella extends from the neighbourhood of the Atlantic to the Missisippi‡.

Perennial.——Flowers (in Pennsylvania, New-Jersey, &c.) in June and July: ripens its fruit in August and September. The fruit often continues upon the plant through the winter, and succeeding spring.—The stems are slender and shrubby, lying close to the ground, and throwing out radicles at the joints. The leaves are opposite, of a pretty thick consistence, obtusely egg-shaped, entire, very smooth, and of a dark green colour. They are marked, both longitudinally and transversely, with whitish or herbaceous coloured veins, which are especially observable upon the upper surface. The flowers are axillary, twinned (two arising from a common peduncle), villous internally, and of a white colour. Stamens four. Germen twin, orbicular, common to both flowers, and inferior. A single style to each flower: stigmas four. The pericarp is a berry, two-parted, and globose: seeds commonly four, compressed and callous. The flowers have a very agreeable odour.

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* All the vegetables thus marked, in the *Flora*, are found within twenty miles of the city of Philadelphia.

† The History of Greenland, &c. Vol. i. p. 66. English translation. London: 1767.

‡ Sketch of a Geographical View of the Trees and Shrubs of North-America. *MS*.

Cotton Mather says, that the Mitchella is a valuable remedy, in cases of dropsy. A decoction of the leaves is directed to be taken, for several days together, as a tea. It is said to act as a diuretic, "as long as the disease lasts; after which it may be drank without provoking urine observably." He adds, that "gouty persons drink it with benefit." *l. c.* I am assured, that, in Georgia, this plant has been found very beneficial in some cases of dropsy, and that its diuretic operation was very manifest.—Birds of various species, especially the Tetrao umbellus (called Pheasant and Partridge), and the Tetrao marilandicus (called Partridge, in Pennsylvania), eat the ripe fruit. Hence one of the most common names of this plant, Partridge-berry, by which it is known in Pennsylvania, in the New-England states, and even in Hudson's-Bay. The berries, though not very agreeable to the taste, are, it is believed, quite innocent, notwithstanding one of the names of the plant, Poison-ber-

ries, by which it is sometimes known in the country round Hudson's-Bay.

CALLICARPA. *L.*

Gen. Pl. edit. Schreb. n. 175. *Juss. p.* 107. *Gært. t.* 94.

Cal. 4-fidus. *Cor.* 4-fida. *Bacca* 4-sperma.

CALLICARPA *(Americana. L.)* ramis subalbido-tomentosis; foliis oppositis ovatis acutis dentatis, subtus subtomentosis; baccis glomeratis lucido-glabris. *B.*

Callicarpa (americana) foliis serratis subtus tomentosis. *Mant.* 2. *p.* 198. *Act. Ups.* 1741. *p.* 80. *Kniph. cent.* 4. *n.* 12. *Willd. Sp. Pl.* 1. *p.* 619. *Gmelin, Syst. Nat.* 2. *p.* 246.

Callicarpa americana. *Sp. Pl. p.* 161. *Schoepf, Mat. Med. Amer. p.* 13. *Schoepf, Reise,* 2. *p.* 127, 191. *Marshall, Arbust. p.* 22. *Aiton, Kew.* 1. *p.* 148. *Ellicott's Journal, p.* 287. *Barton's Elem. of Bot. part* 3. *p.* 24. *t.* 10. *fig.* 3. *A. B. C. D. Expl. p.* 25.

Callicarpa (americana) foliis serratis, baccis purpureis. *Walter, Carol. p.* 84.

Callicarpa (americana) ramis pruinoso-tomentosis; foliis lato-ovalibus, utrinque acutis, dentatis, subtus subtomentosis; cymis sessilibus, petiolo brevioribus. *Michaux, Flor. Bor. Amer.* 1. *p.* 95.

Callicarpa foliis ovatis acutis serratis, subtus subtomentosis, baccis glomeratis. *Lamarck, Encyclop.* 1. *p.* 556.

Spondyloccos. *Mitch. E. N. C.* 8. *p.* 218.

Burchardia. *Du Ham. Arb.* 1. *p.* 111. *t.* 44.

Johnsonia (americana) floribus verticillatis sessilibus, foliis ovato-lanceolatis oppositis, caule fruticoso. *Mill. Dict. n.* 1.

Anonymos baccifera verticillata, folio molli et incano, ex America. *Pluk. Alm.* 33. *t.* 136. *f.* 3.

Frutex baccifer verticillatus, foliis scabris latis dentatis et conjugatis. *Catesb. Carol.* 2. *p.* 47. *t.* 47.

Frutex foliis amplis subrotundis acuminatis, ex adverso binis: viminibus lentis infirmis, quasi levi canicie tectis: floribus monopetalis minimis, rubro-albicantibus, ad nodos in fasciculos congestis, baccis parvis humidis, cremesino-purpureis, glabris, splendentibus, autumno speciosissimis, quinque vel sex seminibus compressis repletis. *Clayt. n.* 764.

Bermudas Currants. *Lawson's Voyage, &c. p.* 106.

Callicarpa americana of Loureiro (*Flor. Cochin.* 1. *p.* 88.) is supposed by Willdenow to be Callicarpa cana. *Mant.* 198. *Retz. Obs.* 5. *p.* 1. *Willd. Sp. Pl.* 1. *p.* 620. This species is a native of Malabar and Cochin-China.

Anglis, American Callicarpa. Carolinian Shrubby Callicarpa.

Europo-Americanis, Bermudas-Currants. Sower-Bush. Bermudian Mulberry.

Indigenis, * * * * * *.

In woods, near rivers, and other waters. A maritime or submaritime vegetable; but it is often found at the distance of one hundred and fifty, or two hundred miles, in the mountainous tract, almost always, however, in the vicinity of water.

In New-Jersey,—in PENNSYLVANIA? Delaware (county of Sussex), Maryland, and Virginia.

A shrub, from four to six or eight feet in height. Deciduous.——Flowers (in Virginia) from June to August. Ripens its fruit in August and September.

Miller informs us, that Dr. Samuel Dale employed, with good effect, the leaves of Callicarpa, in cases of dropsy. This would seem to favour the opinion of Linnæus, that all the plants of the natural order of *Dumosæ*, to which the Callicarpa belongs, are endued with active qualities*. The berries, however, are eaten in Carolina, and are thought agreeable, *after* they have, for some time, been exposed to the influence of the frost. At such time, they are very sweet. Lawson says, that he "can see nothing inviting in them, and reckons them a very indifferent fruit." *l. c.* In Carolina they are also used, infused in beer, to which they impart a very agreeable taste.—The unripe berries are considerably ascescent: hence one of the provincial names of this vegetable, Sower-Bush, by which it is known in Virginia, &c.

The berries, bruised and boiled with alum, communicate a purple colour to woolens. *Schoepf, l. c.* I doubt, however, if they be deserving of much attention as a dye; especially in a country abounding, as do the United-States, in such a great variety of valuable *Plantæ tinctoriæ*.

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* "Omnes hæ *(Dumosæ)* conveniunt qualitate maligna. Vel purgant, vel omnino deleteria sunt," &c. *Prælectiones, &c. p.* 504. See, also, my Elements of Botany. Part 3. p. 24.

CORNUS. *T. L.*

Gen. Pl. edit. Schreb. n. 194. *Juss. p.* 214. *Gært. t.* 26.

Involucrum 4-phyllum sæpius. *Petala* supera 4. *Drupa* nuce 2-loculari.

CORNUS (*florida. L.*) arborea: foliis ovatis, acuminatis, subtus albicantibus: involucro maximo; foliolis obcordatis: drupis brevi-ovatis. *B.*

Cornus (florida) arborea, involucro maximo: foliolis obcordatis. *Sp. Pl. p.* 171. *Willd. Sp. Pl.* 1. *p.* 661. *Hort. Cliff.* 38. *Hort. Ups.* 29. *Roy. Ludgb.* 249. *Gronov. Flor. Virg. p.* 20. *Gmelin, Syst. Nat.* 2. *p.* 256. *Cold. Noveb.* 16. *Mill. Dict. n.* 3. *Du Roi, Harbk. tom.* 1. *p.* 167. *Wangenh. Amer. p.* 51. *t.* 17. *f.* 41. *Schoepf. Mat. Med. Amer. p.* 14. *L'Herit. Corn. n.* 3. *p.* 4. *Aiton, Kew.* 1. *p.* 157, 158.

Cornus florida. *Kalm,* 1. *p.* 66. *Forster, Flor. Amer. Sept. p.* 6. *Marshall, Arbust. p.* 35, 36. *Bartram's Travels, p.* 401, &c. *Muhlenberg, Ind. Flor. Lancastr. p.* 162. *Barton's Collect. for Mat. Med. Unit. Stat. Part* 1. *p.* 11, 12, 45. & *Part* 2. *p.* 17—19. *Walker's Inaug. Diss. cum icon. bona.*

Cornus (florida) arborea, involucro maximo; foliolis obcordatis: drupis rubris. *Walter, Carol. p.* 88.

Cornus (florida) arborea: foliis ovalibus, acuminatis; subtus albicantibus: floribus sessiliter capitatis; involucro maximo, foliolos apice deformi quasi obcordatis: fructibus brevi-ovatis. *Michaux, Flor. Bor. Amer.* 1. *p.* 91.

Cornus mas virginiana, flosculis in corymbo digestis a perianthio tetrapetalo albo radiatim cinctis. *Pluk. Alm.* 120. *t.* 2. *f.* 3. *Catesb. Carol. p.* 27. *t.* 27.

Cornus mas floribus quasi in corymbo digestis, perianthio albo e quatuor foliis composito radiatim expanso cinctis. Dogwood. *Clayt. n.* 57.

Dogwood. *Lawson's Voyage, &c. p.* 94.

Anglis, Great-flowered Dogwood. Florid Dogwood. Male Virginian Dogwood.

Europo-Americanis, Dogwood. Box-tree. New-England Box-wood.

Indigenis. Mon-ha-can-ni-min-schi, and Hat-ta-wa-no-min-schi*, of the Lenni-Lennape, or Delaware-Indians.

In woods, in a great variety of soils.

"Hab. in sylvis Virginiæ, Carolinæ, Canadæ, &c." *Michaux, l. c.*——Very common in New-York, New-Jersey, PENNSYLVANIA, Delaware, Maryland, and Virginia. Ph.

The geographical range of this species of Cornus is not well known to me. I trace it, very confidently, as far north as the latitude of 44°, and as far south as 28° or 27°. But I have no reason to suppose, that these are the *ultimi fines* of the vegetable, in either direction. It inhabits from the Atlantic to the Missisippi, but how much further west, I know not.

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* The words *min-schi*, which so very frequently occur as a part (the terminating part) of the Lenni-Lennape names of our native vegetables, signify, if I do not mistake, a *tree*, or *shrub*, or *wood*. I do not perceive, that these words are ever applied to any of the herbaceous vegetables, strictly so called, though they are to small shrubby plants, as well as to the largest trees. Thus the Chesnut, which is one of the largest North-American trees, is called Woa-pi-*min-schi*, and a small species of swamp Vaccinium, Mas-ge-qui-*min-schi*.

A shrub or tree.——Flowers (in Pennsylvania, New-Jersey, &c.) in April and May.—Ripens its fruit in August and September.

The leaves are deciduous, and before falling (in Pennsylvania, in the months of September and October) assume a fine red or crimson hue, which adds much to the beauty of a North-American forest. (See my *Elements of Botany. Part* 1. *p.* 64, 65.) Several other species of Cornus (even C. canadensis, if I do not mistake) are clothed, about the same season of the year, in a similar livery.

The beautiful involucre of this species of Cornus is well worthy the attention of the physiological botanist. "Each foliole is composed of two distinct parts, each part being entirely the production of a separate season; and, contrary to the common order of vegetation, the upper part is produced first: that is, the points of the folioles grow in one season, forming a hybernacle, and the following year the lower parts of the folioles grow and burst it open. The points now become callous, and wrinkle the leaf, and this gives them the appearance of being end bitten." *Mr. David Thomas, MS.*

CORNUS *(sericea. L.)* ramis patulis, foliis ovatis subtus ferrugineo-sericeis, cymis depressis. *L'Herit. Corn. n.* 6. *p.* 5, 6. *t.* 2. *Aiton, Kew.* 1. *p.* 158. *Willd. Arb.* 75. *Willd. Sp. Pl.* 1. *p.* 663.

Cornus sericea. *Jungh. Plant. Ic. cent.* 1. *t.* 23. *Barton's Collect. for Mat. Med. Unit. Stat. Part* 1. *p.* 12. *Part* 2. *p.* 17—20. *Elem. of Bot. Part* 3. *p.* 16. *Walker's Inaug. Diss.*

Cornus arborea, cymis nudis, foliis subtus sericeis. *Mant.* 199. *Syst. Veget.* 134. *Gmelin, Syst. Nat.* 2. *p.* 257.

Cornus sanguinea. *Forster, Flor. Amer. Sept. p.* 6. *Marshall, Arbust. p.* 36. *Bartram's Travels, p.* 321, *&c.*

Cornus (sanguinea?) arborea, cymis nudis, ramis rectis subrubris, drupis coeruleis. *Walter, Carol. p.* 88.

Cornus (lanuginosa) patula: ramulis lanuginosis: foliis ovalibus acuminatis, plerisque basi subrotundata obtusis, subtus manifeste pubescentibus: cymis confertifloris, lanuginosis? *Michaux, Flor. Bor. Amer.* 1. *p.* 92.

Cornus (Amomum) arborea, foliis ovatis petiolatis, floribus corymbosis terminalibus. *Mill. Dict. n.* 5. *Du Roi, Harbk.* 1. *p.* 165. *Wangenh. Amer. p.* 90. *Schoepf, Mat. Med. Amer. p.* 14.

Cornus Americana sylvestris domesticæ similis, bacca cœrulei coloris elegantissima. *Pluk. Alm.* 121. *t.* 169. *fig.* 3.

Cornus fæmina, floribus candidissimis umbellatim dispositis, baccis cœruleo-viridibus, ossiculo duro compresso biloculari. Swamp Dogwood. *Clayt. n.* 23. *Cold. Noveb.* 17.

Oldenlandia. Dogwood? *Cutler, Mem. Amer. Acad.* 1. *p.* 412.——The Red Willow. The Rose Willow. The Dogwood. *Ibid. p.* 491.

Anglis, Blue-berried Dogwood.

Europo-Americanis, Red Willow. Rose Willow. Swamp Dogwood. American Red-rod Cornus. New-England Dogwood. Female Dogwood.

Indigenis. Kin-ni-ka-nick is the name which some of our Indians, of the Delaware stock, give to the mixture (which they are fond of smoking) of the bark of this species of Cornel and Tobacco: but I am not certain that they designate by this appellation the shrub itself.

In swamps, on the margins of rivers, lakes, &c., and never, I believe, on high, dry ground.

This species has a very extensive range through the continent of North-America. It grows abundantly in both the Canadas, and in the New-England states, and is very common in New-York, New-Jersey, PENNSYLVANIA, Delaware, Maryland, and Virginia. Ph.

A shrub, from six or eight, to ten or twelve, feet in height.——Flowers (in Pennsylvania) in July and August. Ripens its fruit in September.

The reader who is desirous of obtaining information relative to the medical properties of this species of Cornus and of Cornus florida, is referred to the *Materia Medica Americana* of Schoepf, to my *Collections*, and especially to the valuable inaugural dissertation of Dr. John M. Walker*. I shall only observe, in this place, that since the publication of these works, much additional testimony in favour of the useful powers of Cornus florida, as a remedy for intermittent and remittent fevers, has been furnished by the practitioners of medicine, in various parts of the United-States, and that we may confidently pronounce the bark of this tree one of the most valuable indigenous substitutes for the Cinchona, or Peruvian bark, that has, hitherto, been discovered.

The bark of Cornus sericea is one of the favourite winter articles of food of the American beaver (Castor Fiber). The ripe drupes are greedily devoured by the common domestic fowl.—From the bark of the more fibrous roots of this shrub, the Indians, in some parts of the continent, obtain a good scarlet colour, with which they dye some of the articles of their dress. I have not learned what *mordant* (if any) they employ to fix the colour.

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* An Experimental Inquiry into the Similarity in Virtue between the Cornus florida and sericea, and the Cinchona officinalis of Linnæus, &c., &c. Philadelphia: 1803.

POTHOS. *L.*

Gen. Pl. edit. Schreb. n. 210. *Juss. p.* 24.

Spatha. *Spadix* simplex floribus tectus. *Cal.* nulla. *Petala* quatuor. *Bacca* disperma.

POTHOS *(Putorii. mihi.)* acaulis; tota foedissimè olida: foliis cordato-ovatis concavis, glaberrimis; spadice subgloboso. *B.*

Pothos (ovata) foliis ovatis subtus glaucis. Baccis 1-spermis 1-locularibus. *Walter, Carol. p.* 224.

Pothos (ovata) foliis ovatis subtus glaucis. Baccae 1-spermæ. *Gmelin, Syst. Nat.* 2. *p.* 274.

Pothos (foetida) foliis cordatis, spadice subgloboso. *Aiton, Kew.* 3. *p.* 319.

Pothos (foetida) acaulis: foliis ovalibus, concavis: spadice subgloboso. *Michaux, Flor. Bor. Amer.* 2. *p.* 186.

Dracontium (foetidum) foliis subrotundis concavis. *Sp. Pl. p.* 1372. *Willd. Sp. Pl.* 2. *p.* 288. *Schoepf, Mat. Med. Amer. p.* 133. *Castiglioni, Viagg.* 2. *p.* 238, 239.

Dracontium (foetidum) foliis subrotundis. *Gmelin, Syst. Nat.* 2. *p.* 596.

Dracontium foliis subrotundis concavis integris. *Gronov. Flor. Virg. p.* 141.

Dracontium foliis subrotundis vulgo Skunck-weed. *Cold. Noveb.* 214.

Dracontium foetidum. *Kalm*, 2. *p*. 90, 91. *Forster*, *Flor. Amer. Sept. p*. 41. *Muhlenberg*, *Ind. Flor. Lancastr. p*. 179. *Barton's Fragments. Part* 1. *tables*, *p*. 1. & *Part* 2. *p*. 42. *Elements of Bot. Part*. 3. *p*. 130. *Idem*, *Memoirs on Instinct, and Animal Reason. Chap*. 1. *MS*.

Dracontium (camtchatcense) foliis lanceolatis? *Amoen. Acad*. 2. *p*. 332, 333. *Sp. Pl. p*. 1372. *Mill. Dict. n*. 4.

Dracontium (camtschaticum) foliis lanceolatis, caule erecto? *Gmelin*, *Syst. Nat*. 2. *p*. 596.

Arum americanum betæ folio. *Catesb. Car*. 2. *p*, 71. *t*. 71.

Calla aquatilis odore alii vehemente prædita, radice repente, vulgo Pole-Cat-weed. *Clayt. n*. 17.

Skunk Cabbage, or Poke. *Carver's Travels*, &*c*. *p*. 484.

Skunk Cabbage. Skunkweed. *Cutler*, *Mem. Amer. Acad*. 1. 407—409.——The Arum, or Skunk Cabbage. *Belknap*, *New-Hampshire*, 3. *p*. 127.

Skunk Cabbage. Arum americanum. *Williams*, *Vermont*, *p*. 70.

Anglis, Stinking Pothos, or Skunkweed.

Europo-Americanis, Skunk-weed. Skunk-Cabbage. Polecat-weed. Itch-weed. Hellebore. Ellebore. Irish-Cabbage. Poke. Byorn-blad (Bear's-leaf), and Byorn-retter (Bear's-root) of the Swedes settled in North-America. Beerenwortel and Bonsemkruid. *Schoepf*, *l. c*.

Indigenis, * * * * * *.

In wet and shaded woods, in meadows, in swamps, &c.

"Hab. a Canáda ad Virginiam." *Michaux, l. c.* ——It is a common plant in New-York, New-Jersey, PENNSYLVANIA, Delaware, Maryland, and Virginia. Ph.

Perennial.—Flowers (in Pennsylvania) in April and May. It sometimes flowers as early as the month of January. This is especially the case where it is well protected from the influence of cold, by the fallen leaves of trees, and other vegetables.

II. *Additional Facts and Observations relative to the Nature and Origin of the Pestilential Fever. By the College of Physicians of Philadelphia. Philadelphia, printed by A. Bartram, for Thomas Dobson, at the Stone House, No.* 41, *South Second-street.* 1806.

IN 1798, the College published their *Facts and Observations relative to the Nature and Origin of the Pestilential Fever*, in which they attempt to establish the nature and origin of the disease generally called YELLOW FEVER, accompanied with such evidence as they thought necessary to prove its foreign origin.

The public mind having, since that time, been much agitated and interested on this important subject, the College have thought it right again to come forward with additional proofs to substantiate their opinions. An idea of the general tenor of the present work will be best formed from a perusal of their own introduction, which we therefore give entire.

" On the re-appearance of the pestilential fever in this city, in 1793, after an interval of more than thirty years, we were struck with its mortality and contagious nature, as well as with the train of symptoms, so widely different from any thing we had been accustomed to. These considerations naturally produced a supposition of its foreign origin; and, in the course of our inquiries on the subject, we were led to make the following conclusion, in reply to the requisition of the governor of the commonwealth, on the origin of the disease.

" No instance has ever occurred, of the disease " called the Yellow Fever being generated in this " city, or in any other part of this state, as far as we " know; but there have been frequent instances of " its having been imported, not only into this, but " into other parts of North-America, and prevailing " there for a certain period of time; and from the " rise, progress, and nature of the malignant fever, " which began to prevail here about the beginning " of last August, and extended itself gradually over " a great part of the city, we are of opinion, that this " disease was imported into Philadelphia, by some of " the vessels which arrived in the port after the mid- " dle of July. This opinion we are further confirmed " in, by the various accounts we have received from " the best authorities we could procure on the sub- " ject."

" Subsequent events and researches have confirmed these opinions; and in 1798, when the facility of producing sufficient proofs was abundant, we published an account of the nature and origin of the pestilential fever, accompanied with such facts to prove its introduction to this city from the West-Indies, as to us appeared incontrovertible. The mode of introduction, and of the spreading, of this disease, beginning as from a point, and gradually extending itself more or less throughout the city, as well as the daily instances of its communication which occurred, had also, as we supposed, afforded evidence, sufficiently convictive, of its contagious nature.

" In order, however, to throw more light on the subject, we conceive it may be useful to publish the opinions and observations of several respectable characters, physicians and others, concerning the sentiments long since prevalent in this country, as well as some interesting facts, which had come to their knowledge, respecting the foreign origin of the disease.

" The importation and contagious nature of this fever appear to be so closely connected, that, in addition to what has been repeatedly published on this head, we have selected a few cases, which we suppose must very clearly prove the contagion of the pestilential fever, more particularly during the months of July, August, September, and October.

" A desire to be useful to our country, by calling the public attention to these important points, so as to prevent any relaxation in quarantine laws, as well as to disseminate truth generally for the good of others, has been our motive for making a further publication at this time; for we think there is too much reason to fear, that the partial exemption from these diseases, of latter years, may have a tendency to produce a dangerous security amongst us."

The proofs now published in support of their opinions consist of nineteen communications, made by physicians, and other well known characters in the United-States, all tending to establish the peculiar nature, foreign origin, and contagious quality of this fever, with some account of the opinions hitherto generally received on the subject.

Whatever may be the merits of the work, it is important, as it contains the opinions of the College. The facts must speak for themselves.

On so interesting a subject, we believe it right to give a short account of the different communications.

The first is from James Pemberton, Esq., an aged and respectable inhabitant of Philadelphia. He relates, from his father's recollection, the foreign introduction of the disease in 1699; also several subsequent instances thereof in 1740, 1747, 1760, and 1762, with the opinions of its foreign origin, universally admitted, at those periods.

Bucks-County, Pennsylvania, corroborating Doctor Meredith's account.

The fifteenth is from Doctor Eneas Munson, of New-Haven, Connecticut, relating the introduction and spreading of the fever in that place, in 1794, and referring to the sixteenth paper, which is a concise abstract thereof, taken from a publication in the New-York Evening Post.

The seventeenth is from Doctor James Stratton, formerly President of the Medical Society of New-Jersey, and contains an account of the introduction of the disease into New-Jersey, from Philadelphia and other places, in 1797, 1798, 1799, and 1805, with proofs of its contagious nature.

The eighteenth is from Doctor John Stuart, of the island of Grenada, giving an account of the introduction of the fever into that island, by the Hankey, from Boulam, in March, 1793. He also adds an account of its contagious effects.

The last paper is by Doctor William Currie, Member of the College, and of the Board of Health, stating the introduction, progress, and contagious nature of the fever of 1805.

We wish for a fair and dispassionate discussion of this subject, so highly important and interesting to the health and commerce of our country, and for this reason would recommend a careful perusal of the different publications of the College.

THIS PORTION

OF THE

PHILADELPHIA

MEDICAL AND PHYSICAL JOURNAL

IS INSCRIBED

To MATTHIAS BARTON, Esq.,

OF LANCASTER, IN PENNSYLVANIA,

BY HIS

AFFECTIONATE BROTHER, AND FRIEND, &c.,

BENJAMIN SMITH BARTON.

Philadelphia, March 7th,
1806.

ADVERTISEMENT.

IT is proposed, in future, to publish each half volume, or one entire part, consisting of at least two hundred pages, of the *Philadelphia Medical and Physical Journal*, early in the months of May and November, annually. Besides these, the Editor believes it will be in his power to publish every year, toward the end of February, a SUPPLEMENT, consisting of about one hundred pages. Such a Supplement is now offered to the public.

The purchasers of the *Journal* are requested not to bind up the supplementary with the other portions of the work. When two, or more, numbers of the Supplement shall have appeared, they may be bound up by themselves.

March 5th, 1806.

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SECOND SUPPLEMENT

TO THE

PHILADELPHIA
MEDICAL AND PHYSICAL JOURNAL.

SECTION FIRST.

The above-named Physician, as well as the one who practised at Barreos, Dr. Joaquin de Bobadilla, to whose zeal and exactness we are indebted for a great part of the important observations in this Dissertation, were both careful to clear the stomach and intestines by a slight vomit, before they commenced the use of the specific, or added v. g. two drams of cream of tartar, or cathartic salt, to the first dose of bark, to the second, and even to the third, if necessary, or even causing them to vomit, by means of warm water, without medicine; but females and others, who undertook their own cure clandestinely, as soon as they knew the singular efficacy of this remedy, learnt (as they say themselves) the importance of not losing an instant of time, by these, or other usually preparatory steps; they found that cures were equally performed without as with them, that it was necessary to be careful with the vomits, because much time was lost by them, and they left the stomach so irritable, that they could not so well retain the bark. In short, (says Lafuente), when the more sensible part of this village was satisfied of its efficacy, an emulation was excited amongst those who were attacked, who could take the most bark within the forty-eight hours, and at the earliest period of them.

The greater part of the sick, therefore, had neither vomit, purgative, nor other receipt than a packet of half a pound or more bark in powder (and even this not divided into doses), and the moment they felt the first chill, they began rapidly to take the bark, without sleep or remission, night and day, every two hours, a large spoonful at a time, sometimes equal to an ounce, sometimes half an ounce, and at least three drams. Some of them, either from having suffered in their reason, or from some excess, or inattention, and sometimes unnecessarily but for greater certainty, took from sixteen to twenty, or even thirty-eight ounces within a few days, without any ill effect.

Nevertheless, those who wish to use it by measure, may divide each ounce into three papers, and take one every three hours, taking a little broth each of the two intermediate hours; by which means they will take in the first forty-eight hours, eight ounces of bark in twenty-four papers. If the stomach rejects a dose, another must be taken immediately, without reckoning what is rejected as a part of the eight ounces, and the patient must not be indulged in his natural repugnance to the repetition more than half a quarter, or, at most, a quarter of an hour, to quiet his stomach; and if, from any inattention or accident, a dose has been omitted, two doses must be taken each succeeding hour, and the broth taken the third, following up and compelling, as it were, the patient, until the lost time is made up, and the risk got over that may have arisen from carelessness or delay.

The vomiting, which is peculiar to this disorder, seldom begins before the third day, and this is another motive not to lose a moment during the two first days; it is true, that there are some who throw up the bark from the nausea it naturally creates, and this will, in those cases, lessen much its good effects. Yet in the village of Barreos, only one person suffered from this circumstance, lic good might arise from giving merely an abstract of these important observations.

For (observes Dr. Lafuente), it being absolutely necessary to convince the minds of the medical and other attendants, in order to execute a plan, which, although simple, requires a certain species of boldness to conquer obstacles and prejudices, it will be indispensably necessary to read the whole work, (which will be speedily published), in order to be fully convinced of the correctness, truth, and irresistible conviction it carries with it. In the mean time, he informs the public that he has preserved himself from the Yellow-Fever, during the execution of his public medical commission, in the years 1800, 1, 3, in which he was more or less exposed to its contagious effects, by merely taking half an ounce of bark every morning in one or two doses, and that having begun their rounds more steadily, and been more exposed to danger in the beginning of October, 1804, he guaranteed himself in the same manner during that month and November.

This was likewise practised by Dr. J. de Bobadilla, and the Rev. Father Juan, of the order of San Miguel Mendicant and Barefooted, and Chaplain to the sick in the village of Barreos, who were constantly living within its vortex, until tired of taking bark as a preservative, and convinced that they should run but little risk, in case they were attacked by the fever, they agreed to discontinue it, and follow their rounds, determined, in case of attack from the sickness, to destroy it by bark at its first appearance, and see if in this manner they could escape, or even overcome the attack, in those circumstances which were less favourable; and in effect Lafuente, who quitted the bark the 20th of November, was on the 4th of December seized with a suspicious fever, which was dissipated instantly by taking six ounces of bark in forty-eight hours from the chill. The Chaplain and Physician who had attended the sick, and omitted the preservative, on the 15th and 16th of December, were attacked in the the beginning of January, and both immediately stopped it; the first by a pound of bark in forty-eight hours, because his fever was very violent, and he was determined to be secure; the other, having been more slightly attacked, was cured with six ounces in the forty-eight hours, and one ounce the following day.

Lastly, it is fully proved by the same documents, that a person having the Yellow-Fever, who is with his attendants in a cottage or barrack in the country, however small it may be, does not communicate the infection to any one. At the time that the sickness prevailed in Barreos, the families that remained in the houses lost in some of them two or three persons; the contagion also prevailed in a fine hospital that was obliged to be opened in a corner of the town, on account of the prejudices of some of the sick, and from which they were with their assistants ultimately obliged to fly, finding a safer asylum in the country cottages; at the very same time there was not a single instance of one assistant falling sick amongst a hundred which attended the sick in the Cottage-Lazarettoes, which were established at cannon-shot distance from the village, where each cottage or tent had only one sick, with their friends who chose to accompany them, and each cottage (or tent), was isolated and separated eighteen yards each way from every other one.

The rains and hurricanes, which prevailed the beginning of December, obliged the officers of health to offer to the sick in these cottages or tents that chose to return to the hospital, but they unanimously determined, unless obliged by violence to do otherwise, to remain where they had experienced the good effect of their situation, both for themselves and their assistants, not one of whom had fallen sick. Such is the enormous difference between the two degrees of ventilation.

The imperfect construction, the tumultuous and ever-continued interruptions, of the best of these great buildings, has not a single point of resemblance with the natural and tranquil circulation, which, without ceasing night and day, pierces the innumerable cracks or pores of a tent or cottage. In buildings we continually breathe the very slightest offensive vapors, for at least eight or ten hours every night, when we are obliged to close our doors and windows, but in a cottage, always sufficiently porous and open, the very laws of the circulation of air make it impossible to retain one moment any of the miasma which escape from the contagious persons or effects, even although the door should be shut, and there should be no window. A chamber, in which a single healthy person sleeps one night, smells offensively to any person who from without opens the door suddenly, until it is ventilated; and the smoke and smell of a single cigarr is easily preserved, and for a long time, in an apartment plastered with lime and mortar; but in a cottage, the most fætid excremental smell scarcely remains an instant, and even the smoke of a large portion of burning wood is scarcely retained. The smell of sulphur which they had just burnt at the moment Dr. Lafuente was going to occupy the cottage in the Lazaretto when he was ill, did not last longer than the time taken to burn it.

What a consolation for a family to know, that by going to a cottage or tent with a person sick of the Yellow-Fever, not only the sick person will be in a better situation, which is instantly felt by those who are convalescents, as well as those who are half infected, and on the point of having the fever, as they quickly dissipate all the miasma attached to themselves or clothing; but more especially they are certain, that all who may be inmates there will never be affected, although they may sleep, as it were, in the same bed with the sick. But the reading of the work will satisfactorily show, even to the very foundation, all the incomparable advantages which are promised by this discovery.

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Note in the Mexico Gazette, from whence this account was extracted.

The Editor and a Physician residing in this capital, desirous of propagating the knowledge of this work in the whole kingdom, and particularly that Vera-Cruz may be benefited by it, they have subscribed that it shall be reprinted in this our metropolis.

II. *Notices of a singular form of Fever, which prevailed in some parts of the State of Tenessee, in the autumn and winter of* 1805. *In a letter to the* EDITOR, *from* FELIX ROBERTSON, *M. D., of Nashville.*

AN opportunity of conveyance offering, through the politeness of Mr. E., of this place, I shall give you a short account of the prevailing disease of the last fall and winter, in this neighbourhood.

It commenced with a general lassitude or a sense of weariness, accompanied, in general, with but slight fever. In a few cases, the fever was considerable, the patient, at the same time, complaining of a dull pain, or sense of heaviness, throughout the region of the stomach.

A nausea was very common, proceeding, in some cases, to violent vomiting. The bowels, generally, were natural, as to frequency of discharge; but some cases were attended with obstinate costiveness. In a variety of instances, I found that the stools were white.

The eyes and skin became yellow in proportion to the violence of the above symptoms. This yellowness remained for months, in some cases that were neglected. Very few patients were confined to their bed; and some were even capable of attending to business, during the disease. The urine, in every case, was very high coloured.

The only medicine that I gave, with advantage, was calomel in small doses, until the mouth was slightly affected, by which time every case, that came under my care, was relieved. A variety of medicines was used by the different practitioners of this place, but none of them appeared to be of real service, except mercury.

Repeated cathartics were very commonly used by some at the first appearance of the disease; but they were soon abandoned as useless, or hurtful.

Some patients gradually recovered without medical aid, but, in every case that I heard of, the recovery was very slow.

This disease was so very common, that many of the planters believed it to be contagious, and used every means to avoid being in company with those who had it.

It was much more common among the whites than among the blacks; men were oftener affected than women; adults than children; and young men oftener than elderly men.

The bilious-fever, in its usual form, was not common during this season; and not a single case of jaundice, within my knowledge, ended fatally. In an elderly lady, it produced general dropsy, which will prove fatal to her. I believe, she had no medical assistance for some weeks after she was attacked. Another case produced an ascites (in a middle aged man), which, I think, will be removed without the use of the trocar. This man had no medical assistance.

What the cause of this disease was, is, perhaps, uncertain: but that the bile, either from a defect in quantity, or from too great a viscidity, did not find its way into the intestines, and thus, by depriving the superior portion of that canal of so necessary a stimulus, &c., produced the pain in that region, and the colourless stools, is very evident.

To theorize on the affection, however, is not my intention; and, therefore, I barely give you the most prominent symptoms of an epidemic, at least novel in this quarter of the globe, believing that, in your general researches after knowledge, nothing that has the appearance of novelty would be unwelcome to you.

I am, &c., &c.,
Your Friend,
FELIX ROBERTSON.

Nashville, April 5th,
1806.

III. *Hints relative to Swallows.*

DEAR SIR,

IS it yet ascertained whether Swallows are birds of passage, or remain with us during the winter in a torpid state? I am led to ask this question, from the following passages, which I met with in the celebrated Regnard's Voyage into Lapland, in the year 1681.

" Nous nous étonnâmes que, quoique nous fussions si avant dans le nord, nous ne laissions pas de rencontrer quantité d'hirondelles ; et ayant demandé aux gens du pays qui nous conduisoient ce qu'elles devenoient l'hiver, et si elles passoient dans les pays chauds, ils nous assurèrent qu'elles se mettoient en pelotons, et s'enfonçoient dans la bourbe qui est au fond des lacs; qu'elles attendoient là que le soleil, reprenant sa vigueur, allât dans le fond de ces marais leur rendre la vie que le froid leur avoît ôtée. La même chose m'avoit été dite à Copenhague par M. l'ambassadeur, et à Stockholm par quelques personnes; mais j'avois toujours eu beaucoup de peine à croire que ces animaux pussent vivre plus de six mois ensevelis dans la terre, sans aucune nourriture. C'est pourtant la vérité ; et cela m'a été confirmé par tant de gens que je ne saurois plus en douter."

Pages 78 *and* 79. *Edition Stéréotype. Vol.* 5.

In pages 114 and 115 of the same volume, we find the following remarkable passage, viz. : " La nuit n'est pourtant pas continuelle ; et, sur le midi, il paroît un petit crépuscule qui dure environ deux heures. Les Lapons, aidés de cette lumière et de la réverbération de la neige dont la terre est couverte, prennent ce temps pour aller à la chasse et à la pêche, qu'ils ne finissent point, quoique les rivières et les lacs soient gélés par-tout, et en quelques endroits de la hauteur d'une pique : mais ils font des trous dans la glace, d'espace en espace, et poussent, par le moyen d'une perche qui va dessous cette glace, leurs filets de trou en trou, et les retirent de même. *Mais* ce qu'il y a *de plus surprenant, c'est que bien souvent ils rapportent dans des filets des hirondelles qui se tien-*

nent avec leurs pattes à quelque petit morceau de bois. Elles sont comme mortes lorsqu'on les tire de l'eau, et n'ont aucun signe de vie; mais lorsqu'on les approche du feu, et qu'elles commencent à sentir la chaleur, elles se remuent un peu, puis secouent leurs ailes, et commencent à voler comme elles font en été. Cette particularité m'a été confirmée par tous ceux à qui je l'ai demandée."

I presume by this time you naturalists have no doubts on the above subject; my mind, I confess, is yet wavering.

Your sincere friend,
ANDREW ELLICOTT.

Lancaster, *Jan.* 19*th*,
1807.

IV. *Facts, Experiments, and Observations, relative to some American species of Lampyris, or Fire-Flies. By the late* THOMAS WALMSLEY, *M. D., of Elizabeth-Town, Maryland. Communicated to the* EDITOR *by the author's brother, Mr.* WILLIAM MASON WALMSLEY, *of Philadelphia.*

WHEN the Lampyris is immersed in water, it drowns in fifteen or twenty minutes, but it shines with almost as much brilliancy as when in the open air; and its voluntary emanations are altother as vivid.

Immersed in spirit of wine, it lives five or six minutes: some live longer:—it remains perfectly opake for two or three minutes, then flashes three or four times, each flash being much longer than usual, and after each flash it does not resume its previous opacity, when the powers of life become weak, but before death its brilliancy remains stationary, with a kind of creeping scintillation.

When it is taken out of the spirit apparently dead, it is opake, but on a slight touch with a metallic substance, and a harder touch with any thing, it shines bright, and gradually dies away after half a minute or longer: but it may be excited to flash six or seven times; perhaps oftener.

In a perfect Torricellean vacuum, it shines a short time, and then becomes opake. No irritation will now cause it to give out light, but on the admission of the least bubble of air, it shines again.

When it is compressed between the mercury and the the tube half way up the column, it emits light frequently, for a short time, but very faintly. After remaining *in vacuo* for an hour, or perhaps longer, its powers of light are found to be but little diminished, on being again brought into the atmosphere: very little, indeed, considering the violence done by its introduction. * * * *

In hydrogen gas, the lampyris emits but one or two feeble flashes, and soon dies.

In carbonic acid gas, nearly the same effects are observed.

In azotic gas, when perfectly pure, I have not tried these insects; but having accidentally had this gas mixed with a portion of atmospheric air, I found them to shine less vividly in it than in the atmospheric air, which I kept as a standard.

In oxygenated muriatic acid gas, they emit a few flashes very quickly in succession, on their first immersion; and the flashes are of a redder, though I can hardly say of a more brilliant, light, than the ordinary emanation. They then die. In the course of six or eight hours, they are found bleached perfectly white. * * *

When confined in oxygen gas, obtained from manganese, they instantly give out a light much more brilliant than I ever saw before; and this light they have not the power to diminish, though they can increase it, for some time.

These insects live longer in this than in any of the other gases, but die, in general, in the course of two or three hours. But some have lived eight and ten hours.

Whether dead or not, they continue very brilliant for twenty-four hours, more or less. Six or eight of the insects put into a vial* produce a light so vivid, and of such a peculiar brightness, that the eye can hardly bear it.

The part from which they give out their light is the lower or posterior and inferior part of the abdomen.

* I presume of oxygen gas. EDITOR.

This part is covered by two *scuta* of a pale or whitish straw-colour, and transparent. These scuta, like almost every other part of the insect, are covered with *pili*, or *villi*: but here this villous covering is fine, and requires the aid of a strong double microscope to render it visible.

Each scutum has a small black spot on each side of a line, which divides the abdomen longitudinally. These spots, when viewed through a common magnifying glass, appear to be perforations, and as such I considered them, at first: but, upon examining them with a very strong double microscope, I could not perceive that they were such.

The Lampyris certainly respires as other insects do, by means of *spiracula*: and I was, for some time, inclined to believe, that these spots were perforations for the admission of air, and thence produced the light; for I shall, presently, show, that the air taken in by the spiracula has no communication with the luminous part.

The insect has the power of remaining opake for any length of time: but if that part of the luminous portion, which is covered by the terminating scutum, be cut in two, without injuring the other, it instantly becomes brilliant, and remains so; the insect not having power to increase or to diminish the lustre. But the other scutum is not, in the least, affected. It is opake, or nearly so (that is, perfectly natural), except when the insect exerts its voluntary power of giving out light, and then it presents the same appearance that it did previously to the mutilation.

If a longitudinal incision be made through both scuta, the whole becomes luminous, and the insect cannot prevent it.

Now, from all this it would seem, that the air taken in, by the spiracula, for the support of life, has no communication with that which causes, or contributes to, the elimination of light. Certain it is (as relates to our American lampyris at least), that oxygen is essentially necessary to this effect. But whether this vital support be taken in through those spots which appear like perforations (or, perhaps, are such), or acts in some other way, I know not; but I should rather incline to think, that the spots, alluded to, are not perforations, and, therefore, that the air must come in contact with the phosphorescent substance in some other way.

Viewing a live insect, laid on its back, through a powerful double microscope, in a very dark room, or at night, its own light enabled me to see it tolerably distinct: for, in that situation, it is considerably luminous, during the intervals between the flashes. When it gave light by volition, the suddenness of the flash made so great a contrast to the ordinary appearance, that the eye could not accommodate itself so as to discern any thing, except that the luminous portion did not appear to be at all altered in its dimensions, no motion whatever being perceptible. And this is another reason which leads me to suppose, that the air is not taken in by the means above hinted at.

During the intervals, a very singular appearance presented over the whole luminous portion, entirely invisible to the naked eye. From the points of the villi covering the whole scutum, infinitely small sparks of light seemed to issue, forming a kind of creeping scintillation, not unlike the appearance of burning paper, after the blaze has been extinguished.

This, I believe, is the cause of the partial shining, as it appears to the naked eye, during the interval between the flashes, and can only be perceived in the dark.

In the day-time, nothing of the kind can be discerned. The substance contained under the scuta is of an opake white colour, and evidently cellular. Its construction bears a considerable analogy to the *membrana adiposa* of the human subject, but is more delicate. In one or two instances, I thought I could perceive something similar to the ramifications of the *bronchia*, appearing to originate from the spots, which I took to be perforations, in the scuta.

In three cases, I succeeded in dividing the insect exactly across the spots, without hurting it, by a very sharp instrument, but this appearance I did not often see.

V. *An Idea or Sketch of the most common Diseases of the French West-India Islands, to which those who land there, for the first time, are above all subject. By the Knight of St. George. Communicated to the* EDITOR, *by the late Dr.* JOHN FOULKE, *of Philadelphia.*

IT is to you that are called by your extensive trade to the French West-India Islands, that I undertake to give the history of the too often fatal diseases with which the new comers are commonly attacked in that country, and which are the same that I had an opportunity of attending to, in those latitudes, on board the King's men of war, even from the year 1765. I shall subjoin the means that I employed to cure them, and those which I found successful in preventing them, according to the advices of the celebrated Garnier, King's Physician in Guadaloupe.

All those who come to the islands ought to expect to fall sick, a natural effect of the passage from a temperate air to that of countries excessively hot. To this general cause are often added several others, which can be prevented only by a strict moderation in the use of spirituous liquors, and of fruits of all kinds, which are plentifully met with; and, above all, by a strict chastity, until, being naturalized to the climate, they can form a lawful connexion. I shall not undertake the physical explanation of the effect of too hot an air upon the animal economy. I do not know of any thing better on this subject, than what Mr. Poissonnier Desperrieres wrote on it. I shall confine myself to the means of remedying the effects of this too hot air, and that, too, according to the experiments I have made.

1. The new comers in the islands are subject to a hot fever, or to the true *cauzus* of Hippocrates, unlike, however, to that which rages in Europe, both in its beginning and progress, its state, and last stage. The word *cauzus*, derived from the Latin *caurus*, I burn, is used here, because in that disease the patients are, as it were, in a burning fire; but the prostration of the nervous system is so great, that they do not at all feel this heat: they are only sensible of a pain in the head, and in the region of the diaphragm and loins.

The chief symptoms which are the characters of the first stage of that disease, are an universal sinking of strength, which can be produced by no other cause than the malignity of the disease itself; a burning heat which is successively felt in the parts that are necessary to life, whilst a frozen and deadly cold often seizes upon, and occupies the extremities; the skin, the nostrils, the tongue, and mouth, are extremely dry; the breathing hard and quick, the thirst unquenchable. The patients complain of sharp pains in the diaphragm and loins; the urine is commonly red, sometimes in an imperfect state; the nauseas, vomitings, anxieties, uneasiness, and a dry cough quickly succeed one another; at last, delirium, phrenzy, and convulsive fits terminate the disease by death, if suitable assistance be not applied before the fourth day.

The dangers of this disease, such as we have just exposed them, are but too common, especially in July, August, September, and October. They, however, vary sometimes, according to the simplicity or multiplicity of causes producing them, and according to the age and constitution, so that the evils arising from them are less or greater, more or less multiplied. The danger, for instance, is less for a young man than for an older person, because, in a young man, the fibres are softer, the springs more supple, the diameter of which can be stretched without the danger of their being broken. He therefore extricates himself more commonly from that disease, when suitable remedies are seasonably applied. For contrary reasons, old persons are in greater danger. As for the constitution, the danger will be greater for bilious and sanguine persons, than for phlegmatic, because of the fermentation and inflammability of the principles of the former. As for the concourse of causes that may have given rise to the disease, it is evident that the greater their number, the less susceptible the patient will be of recovering.

Two general indications offer themselves for the cure of this disease: 1, to lower the forced tone of the solids, or cause the eretism to cease: 2, to diminish afterwards the volume of the fluids.

One would be inclined to believe that bleeding would be the remedy which we should particularly insist on, to fulfil this double indication; nevertheless, though bleeding be good by itself, when sparingly and wisely applied, experience has demonstrated to us (and it is in this that my opinion particularly coincides with that of Mr. Poissonnier); experience, I say, has demonstrated to us, that bleedings, too often repeated, are very pernicious, because they exhaust the strength of the patient, and accelerate the dissolution of the blood, to which the disease itself has but too great a tendency.

The nauseas, and vomiting of bilious matter, would seem also to indicate the use of emetics; but experience has shown, that they too often prove fatal, because, in the early stage of that disease, vomiting is produced by the eretism: the sweat itself, almost always of a cold kind before the fourth day, being always symptomatic, the sudorific, the cordial, and narcotic remedies must be entirely avoided, however inclined we may be by the indications to make use of them, before the term pointed out by the fifth day.

These, therefore, are the remedies which I propose, and have made use of with success. I hope they will likewise prove successful in the hands of practitioners that are able to judge of the violence of the attacks, and pay a suitable regard to the age, strength, and constitution of the patients.

On the first or second day, they will take a little blood from the patient, without minding the vomitings and symptomatic sweats, which may be arrested, or even disappear by those bleedings. The bilious lax alone should prevent letting more blood, this lax being always critical, even in its first stage. They will make the patient drink plentifully of weak chicken broth, a drink made out of cassia and nitre, or lemonade made out of sour oranges or lemons. By the use of such drinks, the thirst of the patient is diminished, and the acrimony of the bile assuaged; they will produce in the region of the liver a relaxation proper to accelerate the crisis: I mean the discharge of the bile; for vegetable acids, by being united with some parts of the alcalized bile, promote a purge. It was Mr. Garnier who made this observation, and communicated it to me in answer to a letter, in which I asked of him the cause of this effect, which appeared to me surprising. To the drink mentioned above, may be added three or four injections a day, of a decoction of emollient herbs, or of *Gombault*, adding one or two drams of purified nitre in every injection. Besides these injections, they must apply on the lower part of the stomach fomentations of castor-oil, and constantly keep on it warm emollient poultices, made with the herbs mentioned above.

The patient, having at last reached the fourth day of his disease, with such remedies, and having lived on no other food than weak chicken broth, experiences commonly an evacuation of bilious humours which announces the crisis. Then, but only in a sparing manner, they may assist nature with light purgings, such as whey, prepared with cream of tartar, manna, sena, &c.

A Bloody-Flux sometimes occurs, but it is commonly but symptomatic before the fifth day (here again my opinion coincides particularly with that of Mr. Poissonnier). If, however, the evacuation take place by the way of urine, it may be looked upon as critical. My opinion is perfectly the same as to the sweats, when they take place in the indicated time: if they be preceded by the softness of the pulse, they announce the fall of the eretism.

What remains of the sickness is carried off by bitters, such as those they commonly use in Europe for the cure of intermittent fevers. The patients recover pretty soon by observing a suitable diet.

2. The diminution of attacks, in this first sickness, is often followed with another, which may be termed synocal fever rather than burning fever. I have observed, that at Guadaloupe the new comers were more subject to it than to the first.

Without entering into the detail of the symptoms that characterise it, since they differ from the disease that I have just described, only by a few degrees, I will only say, conformably to the remarks I have made upon it, that it terminates commonly on the ninth day, and never passes beyond the thirteenth or fourteenth day. The crisis of this second disease is absolutely the same as that of the first; but we must observe, with respect to both, that it happens on odd days only. This is to be peculiarly attended to, in order not to disturb *nature in its operations.*

I shall observe, that, in spite of the best and most regular administration of the proposed remedies, there happens sometimes so considerable a weakness, that the patients fall into the coma or soporific affection, before the true crisis of the disease has made its appearance. A serious attention must be paid to this symptom, both to prevent it, and to remedy it, when they have been taken unawares. It is announced by a weak and often convulsive pulse. It is then time to apply blisters, made out of fresh cantharide-flies reduced to a powder, on the different places where they are commonly applied, such as the legs, thighs, arms, back of the neck, &c., as the case requires. Cordials, proper to raise again the tone of the nerves, and the organic action of the bowels, will prove successful.

The patients that have arrived at a convalescent state, should observe the most strict diet; preferring, above all, rice-porridge, and light meats. I seriously warn them, that the slightest error may prove very prejudicial.

As for the precautions proper to escape, as much as possible, these sad diseases, I advise the new comers to abstain entirely from spirituous liquors and fruits of any kind, to use moderate exercise, to avoid, above all things, any connexion with women, to use cool drinks, not to fatigue themselves, especially in the sun, the heat of which is but too much felt in those climates. To these advices I will add that of having blood let once or twice on the first days after their arrival; above all, let them take care not to be oppressed by the fear of the disease, which, perhaps, through this means, will become a true one. If, by these precautions, they do not always succeed to preserve themselves from the disease, they may at least be sure that the attacks will be less serious, and that a perfect cure will be more easily obtained.

The various diseases with which almost all the crew of the ship on board which I was, were attacked on their arrival in America, and consequently those that happened afterwards, were partly depending on those of which I have just described the progress and the means of curing. It is absolutely necessary to be acquainted with, and pay a due attention to them; not neglecting, however, the indications which the different epidemical disorders offer but too often.

3. Without speaking here of the different parts of the West-Indies which are very unwholesome in themselves, such as marshy places, where the air is continually infected with putrid miasma, nor of those countries which are not exposed to the east wind, and where the air is extremely rarefied, I have remarked that it was necessary, during the course of the year, to pay a due regard chiefly to two seasons in these islands. Although their temperature is not absolutely regular, they nevertheless deserve the attention of a practitioner that has at heart the public welfare. He ought, therefore, to give them all his attention, to perceive the differences which relate to the different diseases of which each of these seasons are susceptible, and which consequently require different modes of cure.

Two seasons then divide the year, the wet, and the dry. In the former, the north winds pretty commonly prevail, and in the latter the south winds. Richa, a celebrated physician of Turin, who applied himself much to discover the nature and causes of epidemical diseases, rightly asserts, that the air, agitated by north winds, is loaded with saline-acid miasma, which emanate from the mines and waters whence the wind comes; that, on the contrary, the air pushed by the south wind, is filled with alkaline particles, which, being mixed with humidity, have the property of dissolving the blood. The idea which this learned physician gives, though rather general, is a sketch which may improve the learning of a physician. I presume to cite this observation here, because it has appeared to me grounded upon a good and judicious practice: *non enim*, says Huquet, *post rationem inventa est medicina, sed post medicinam quæsita est ratio.*

As the diseases that depend on the season in which south winds usually prevail, are precisely the very ones we have given an account of, and which particularly attack the new comers, we shall say no more about them, as we have expatiated enough on this subject; but there remains to us now, to speak of those that depend on the northern winds.

Every thing being equal, as the winter season of the islands is more congenial to the constitution of the Europeans than the summer season of said islands, it would be proper for Frenchmen, desirous to repair there, to sail from France in the early part of the autumn, in order to be there in the season that would be least prejudicial to them.

The diseases that the most commonly attack the new comers especially, from the month of May to the month of October, are simple intermittent fevers that turn into continual, or rather, according to Morthon, into continentes, which, by their increase, show the affinity they have with the intermittent. They are usually attended with a bilious lax, which increases in the paroxysm, and causes the patient to experience a very great weakness. The hypochondria are painful and swelled; the mouth bitter, sometimes moist, sometimes dry; the tongue sometimes loaded, and more or less hot, according to the violence of the fever, and the state of the constitution; the pulse hard and quick, otherwise pretty uneven, sometimes small and close, above all, in those subjects that are bound in their bowels.

Pleurisies are also to be met with; but they are for the greatest part symptomatic, that is to say, bilious. We ought to study well the characteristic state of the air, and the constitution of the subject that is attacked with them, to conform ourselves to the above-mentioned principles, and, according to the example of Sydenham, view the different diseases that happen during an epidemy, only as symptoms dependent on the general cause, which attacks one part only because, being naturally weaker, it becomes more susceptible of the impression of the ill quality of the air. Still, at the instance of this famous practitioner, it is necessary to apply ourselves precisely to destroy the effects which appear the most visible, and which, according to the system above-mentioned, are to thicken the blood, and occasion obstructions in the weakest of the viscera.

As the tendency of nature appears to be to put an end to these diseases, by evacuations of the bowels, the chief duty of a practitioner ought to be to promote them; observing, nevertheless, to moderate them in those whose strength appears sinking, and, on the other hand, to procure them in others.

Therefore they can adopt the following method. They will begin by bleedings, which they will repeat according to the forces of the pulse. The ordinary drink will be a decoction of roots of lemon-trees and of endive, to each pint of which will be added a dram, or a dram and and a half of glauber salt. For those that are costive, they will add the use of whey, made of cream of tartar. Whey, thus prepared, has the wonderful quality of loosening the bowels, and likewise that of assuaging the effervescence of the blood. Weak chicken broth, in which is boiled spinage that grows in that country, lettuce, and purslane; a weak lemonade, emollient injections prepared or made out of malvacées plants, which are in plenty in these islands, equally satisfy this indication.

The quantity and quality of the matters discharged by those whose sickness is attended with a lax, ought to induce the physician to purge some at an earlier period than they will others. I always made use, with success, of the decoction of cassia, to which I added salt of Epsom. They will, therefore, give the patient a glass of it every three hours, paying nevertheless a due regard to his strength. If the lax should last too long, and there should be cause to fear too great a weakness, they ought to have resort to laudanum, incorporated with some bitters, such as bark of lemon-trees, the little centaury reduced to powder, and the cashoo. A physician, deprived of narcotics in a country where the heat of animal spirits is violent, would be at a great loss. Laudanum may be compared to a beneficent dew, which, in warm countries, ought to be viewed as a true panacea. Indeed it proves so successful as to secure to him who seasonably administers it, the admiration of every body.

Those who are costive should not be purged before the fifth or sixth day of the disease. They ought commonly to continue the use of the above-mentioned eccopotrick three or four days: for I have observed that if they were discontinued, the morbific matter which had been dislodged by them, was re-absorbed, and re-animated the fever more than it did before; whereas, if the use of light purges was persisted in, the pulse lost its closeness, expanded, and assumed its natural state. The patients having been sufficiently purged, they ought to get rid of the remains of the fever by mild bitters.

4. I am still to speak of the pleurisies (fluxions de poitrine), which, as I have already said, are, in that season, almost all symptomatic; of the cholera-morbus, and of the dysentery.

They may sometimes administer an emetic in the early stage of the pleurisy; but I propose this with great doubt: for the hardness of the pulse, which almost always attends the diseases of this country, is a counter-indication that it would be rash to neglect. However, when it appears suitable, it may be administered in a large quantity of cassia-water. Otherwise, the mallows and castor-oil have appeared to me the most suitable remedies. The drink that can be prescribed, though very simple, will contribute with efficacy to expectoration, and will dispose to purging. I administered with success the following diet drink:

Boil, during about half an hour, in a pint of water, a half handful of spinage of the country, *amaranthus altissimus longifolius, spicis everidi albicantibus* (Plumerii Cat. pag. 6), and a half handful of buds of *avocatier* (Persea clusii. hist. plant. 2). When taking the liquor from off the fire, they will put into it a table spoonful of common honey, and after having passed it through a sieve, they will add to it half a pint (English measure) of sweet oil. They will make the patient take a glass of this potion every two hours, and, when he has been bled and purged sufficiently, according to the indications, they will destroy what remains of the disease with an opiate, made with the barks of the lemon-tree, and with the eyes of craw-fishes (yeux d'écrevisses), the whole incorporated with a sufficient quantity of honey.

There is very commonly found in those countries a prejudice which makes the people view bleeding as a poison in a cold, which, nevertheless, for want of this assistance, turns very often into a pleurisy and a suppuration. In the latter case, the matter not being expanded in the cavity of the breast, but only in the bronchial vesicles, the following remedy I have always administered with success, the receipt of which I received from Mr. Garnier:

Take the sharp end of langue de chat, *Eupatorium frutescens hederæ terrestris folio, flore purpurascente* (Plumerii cat. pag. 29), de franchbazin Ocymum, *caryophyllatum maximum* (C. B. P. 225, and Tournef. hist. 204, and avocatier Peasea clusii hist. plant 2), of each about four pinches. Make them boil lightly in a pint of water. After having passed this decoction through a sieve, add to it a half pint of sweet oil (English measure), a dram of theriaca, and two ounces of syrup of frangipanier. *Plumeria flore roseo odoratissimo* (Tournef. hist. append. pag. 659). Give to the patient a tumbler full of this mixture every two hours, and every other day they will melt in the two first tumblers of this drink, two ounces of manna.

If the expectoration is not plentiful enough, and if the moisture is too thick, they may add the diaphoretic antimony; but in case that the patient had a high fever, and the skin was dry, far from prescribing this mineral, they would resort to bleeding.

5. Although the cholera-morbus is a symptom more peculiar to summer diseases, than to winter ones, there are, nevertheless, patients in this last season that are attacked with this sad disorder. They ought then to view it as the forerunner of a continued high fever. It differs from that which attends the *cauzus* or burning-fever of the summer season, because the latter happens most

commonly at the approach of the dissolution of the blood.

The violence of the symptoms of the winter *cholera-morbus* urges an early application of a remedy to it. A faint and small pulse, the coldness of the extremities, give cause to fear lest the patient should sink under it. It is therefore necessary to repeat bleedings upon bleedings. Then the fluids that had been turned out of their way, resume their ordinary course, and the fever that occurs, bears a known character. They administer the remedies which I have already proposed; besides the bleedings, they advise the patient to take frequently weak chicken broth and injections. They ought to resort to laudanum, only in an extreme case, and never then, without having previously given some light minoratiss.

6. The dysentery, more rare than the *cholera-morbus* in winter diseases, and more common in those of the summer, is a symptom, which, in both seasons, happens in the state of the disease. They ought to administer emollient injections, prepared with the decoction of tripes and plantain. They will add to the decoctions the buds of monbin, *monbin arbor foliis fraxini, fructu luteo racemoso* (Plum. gen. pag. 40). They will purge the patient with tamarins, mirobolans, and senna in whey; adding the syrup of succory, compounded with rhubarb. In case the symptoms should permit, they will have resort to laudanum, to the cashoo, and to amber incorporated with the balm of Peru. During the convalescence of this disease, as well of the pleurisy (fluxion

de poitrine), they may put the patient to the diet of gombault bruised and stewed in milk.

If this little essay, though in many respects imperfect, does not appear to you quite undeserving of notice, and if your kindness deigns to sustain my zeal, I shall continue, at a more convenient time, to inform you of what I have remarked with respect to several other diseases, such as the *Tetanus*, the fever called Siam disease*, and, finally, the various diseases peculiar to negroes, such as the *Pian*†, the red *tetters*, or ring-worms, and others which are only to be cured in the blacks with the greatest difficulty.

VI. *Experiments and Observations on the Caterpillar which infests the Lombardy-Poplar. In a letter to the* EDITOR, *from* JOHN B. DAVIDGE, *M. D., of Baltimore.*

IN a letter from Dr. Vaughan to you, are sentiments attributed to me, which, I assure you, never had a place in my thoughts. I have written to the Doctor on the subject, and he appears, from his answer, to be really impressed with the idea, that the construction given by him was the immediate and natural construction. To me, and I believe to all who are acquainted with the French authorities on the subject, and these only were alluded to, the letter is wholly unsusceptible of the interpretation indulged in by the Doctor. And, certainly, any opinion formed, by any person whatever, must be subject to the controul of the authorities quoted. And, further, how a gentleman could permit himself to say, publicly, that I supposed the Poplar-Caterpillar "would perish in the chrysalis state," because it did not subsequently to this state pass into a butterfly, when the authorities appealed to determined, that if it were spurious, it would become a large fly, is to me resolvable only into that haste which too frequently explains itself by errors. It was at least incumbent on the Doctor to have consulted the authorities.

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* The Malignant Yellow-Fever. EDITOR.

† The Frambœsia, or Yaws. The American or negroe names are *Epian*, or *Pian*. The word *Pian*, among the negroes, signifies the fruit of the strawberry. EDITOR.

In the Doctor's letter he says: "The general curiosity and alarm, together with the contradictory accounts of experimentalists, though preponderating on the negative scale, made it desirable to know, whether this suspected insect would pass the regular metamorphoses of lepidopterous insects, or, as supposed by Dr. Davidge, of Baltimore, would perish in the chrysalis state; and thus, by an unusual death, seal the apprehension of its venomous nature."

Whether or not the Poplar-Caterpillar would pass unhurt through the chrysalis state, or possess deleterious properties when in the maturity of the butterfly, so far as my understanding in the matter extends, formed no part of the disputable point. The thing at issue is not, whether the Caterpillar, when raised to its winged state, would possess poisonous qualities, but what its properties might be while still a reptile. The venomous nature of the reptile could by no means be consequential of, or deducible from, the possible properties of the winged insect. And, although the future condition of the animal might be a fruitful subject of pleasing inquiry to the curiosity of the naturalist, yet it could shed no beams along the dark passage through which we had to pass, in our way to the threshold of truth. How the unusual death of an animal, after its reptile state should be at an end, could influence the properties of the reptile state, putting "a seal to the apprehension of its venomous nature," is to me not very clear. I must leave this to the ingenuity of Dr. Vaughan.

The only sentence that has dropt from my pen, from which any idea could be formed of my opinions, is the following: "The reptile of which I treat, is pretty evidently of the class of Caterpillar, and, in all probability, of that genus termed, by some of the enlightened French Naturalists, the false or spurious Caterpillar, which does not after its chrysalis state pass into a butterfly."

The first question, to my mind, arising to view here, is, what is a Caterpillar?

And the second, how are Caterpillars divided? or, into how many genera are they separated?

In zoology, all winged insects, when in their reptile state, are Caterpillars (see Eruca, Encyclopedia Brit.): and, of necessary consequence, no insects, which are not at one period, reptiles, and at another winged animals, can be Caterpillars.

In the Dictionnaire des Sciences, you will find the second question answered. " Fausses chenilles. On a donné ce nom à tous les insectes qui ressemblent aux chenilles, mais qui ont les jambes plus nombreuses, ou situées ou conformées différemment; il vient *des mouches* au lieu de papillons de toutes les fausses chenilles, il n'y a point de crochets dans leur jambes membraneuses, ce qui peut les faire distinguer des vraies chenilles, indépendamment du nombre des jambes."

" The term spurious Caterpillar, has been applied to all insects that resemble the real Caterpillar, but have a greater number of legs, or their legs differently situated, or differently formed. Flies, in the place of butterflies, proceed from all those false Caterpillars. They have no hooks in their membranous legs, and this circumstance, independently of the number of legs, is sufficient to distinguish them from the true Caterpillar."

The division of the French Academicians into the true and false, is admitted by the highest and most respectable English authority, the Encyclopedia Britannica, as good, and founded in fact and in observation. Few men have had greater opportunities of inquiring into this and every other point of science, than the authors of this great work; and few would more reluctantly gild an imposition with the gold of their name. Their words are, "but are liable [speaking of the Caterpillar] to be confounded with a sort of animals, called by M. Réaumur *false* or *bastard* Caterpillars, which carry a great resemblance in their figure to real Caterpillars, but which have more legs than any true ones have, and are finally transformed into *four-winged flies*, which are not true butterflies." Vide Eruca.

Having settled, from the first authorities of England and France (if there be higher than those, I am not acquainted with them), what the Caterpillar is, and the genera, true and false, into which it is divided, I shall go on to point out the only construction which can *fairly* be put on my letter. I say fairly, because I hold it disingenuous for any gentleman, let his knowledge in common matters be ever so extensive, to indulge in an interpretation of any writer, except he have at hand sufficient and adequate guides.

In my letter it was mentioned, that the reptile of which I treat, is pretty *evidently* of the class of *Caterpillar*. Then if it be a Caterpillar, and did not after its aurelia state pass into a butterfly, it necessarily must pass into a large fly, otherwise it would not be a Caterpillar; for a Caterpillar is ultimately and necessarily a winged insect. Its not passing after its aurelia state into a butterfly, is a mere antithesis, and as clearly and irrefutably declared it to pass into a large fly, as if in so many words it were asserted. Nay, in substance, it was asserted. For it was mentioned to be of the spurious genus, which, agreeably to the English and French writers of the first rank, must, after its metamorphoses, be a fly.

When there are but two genera of an animal, and I determine the animal not to be of the one genus, I am understood by every ingenuous man, who has proper authorities before him, to place the animal in the other. A negative in this is fully equivalent to an affirmative; and I do not know that it is not the more elegant mode of expression.

In addition to the above, it might be remarked that, in the following sentence of the letter, my opinion and meaning must be placed without the limits of doubt. "This genus so nearly resembles the real Caterpillar, in figure and general appearance, as to be frequently, while in its reptile state, taken for the genuine Caterpillar." That its reptile is here put in contradistinction to its winged state needs no demonstration. In the aurelia state there is doubt and uncertainty. Nothing interpretative of its being true or false can be collected from this state. Hence the necessity of its becoming a winged animal; or how could I, or any Naturalist, intelligibly speak of a true and bastard genus?

Were it necessary to dilate more on this uninteresting point, I might subjoin, that, within my knowledge, there is no animal doomed to exchange, in its aurelia state, life for death. This state, from, I believe, every authority, may be considered as the cradle of the winged insect, but has never been found to be the coffin of the reptile, except from accident.

Thus much I have thought it necessary to say in illustration of sentiments, which, from misapprehension, have been published to the world in a manner in no degree calculated to make impressions favourable to the original writer. In giving the opinions of others, it is always becoming and modest to do it in their own words. Had this been done in the present case, I flatter myself that I should not now feel any necessity of writing in the language of explanation.

From this, I hope, there will be no inference unfavourable to Dr. Vaughan's candour. The Doctor had not the authority alluded to, and, being under the persuasion, that all Caterpillars must end in butterflies, he hastily wrote, what I am happy to believe, his real sentiments.

But, at best, whatever may relate to the genus of the animal can be viewed as no part of the main point; it only came in by the way, in the rank of a probability. The sole object of the experiments was to ascertain whether the reptile possessed qualities hostile to animal life, and Dr. Vaughan has determined them to preponderate on the negative scale.

The Doctor may have knowledge of experiments which have not fallen under my notice. Of such I can say nothing, nor from such can I admit any thing, except they were of public notoriety, and subscribed by a responsible name. As to experiments, anonymous, or signed by fictitious characters, they certainly cannot be brought into account. Where there is no responsibility, there can be no authority. But even were negative experiments admitted, they carry nothing beyond probability, and only serve to throw a doubt around a successful one, and teach us to be cautious and circumspect in our conclusions, especially when met by successful ones. I call those successful ones which have been performed publicly, and before a number of competent judges. I cannot say unbiassed judges, for, in fact, they had their minds strongly bent up against the success of the experiments; thereby, however, becoming the better qualified, in the present case.

The experiments made in Philadelphia, by Dr. Parrish, were conducted with that caution, wariness, and circumspection, which do great credit to the experimentalist. From these, it is inferrable, without any injustice to any part of the circumstances, that the reptile is malevolent and venomous. Some of the animals were, from the results given by the gentleman who instituted the experiments, unequivocally injured. The experiments are before the public; I need not retrace them here. It is true, and we have no desire to object to it, that the experimentalist supposed that the symptoms of injury had their origin in other sources than the venom of the reptile.

From the experimentalist we have the facts; his philosophy of them cannot exclude us from taking our own view. These experiments of Dr. Parrish, in the minds of some of the most enlightened of our city, bear more than equivocal testimony in behalf of the venom of the animal. At any rate, we cannot consent that these be arranged against us. They cannot, with the candid, be more opposed to us than to be neuter. I have seen no other experiments, with a responsible subscription, that can, in any degree, be considered as negative. As to the reports of the public papers, they are too idle. These general assertions are the mere apologies for argument, the slander of fact. In raising the most common structure, no builder of prudence would give place to materials so coarse, and so unsound. Of this sort of communications, one, truly *negative*, bald, and barren, appeared in a periodical work of this city, termed the Companion, supposed to be by a gentleman who has some controul over that work, and who, in the communication, undertook to assure the public, that, in every age, by every Naturalist, the Caterpillar, in all its varieties, has ever been considered as innocent. At the ground on which this gentleman stands, we shall presently look, when we come to let those Naturalists speak for themselves. His communication is an excellent specimen of the ability some gentlemen possess in writing by guess. Nevertheless, we cannot help remarking, that, if grey hairs would write less loosely, and less unguardedly, we might retain longer our veneration for lettered age. But to return.

In the facts detailed to the public by me, I as yet can detect no fallacy, no imposition; I have minutely examined into the circumstances. To these, I will add another, the result of experiments performed by a Physician of high respectability and character, of this city. He, as I did, commenced his experiments under a tide of prejudice, running forcibly in contravention of the success of the experiments. This fact has not as yet been given formally to the public. But, as it is of the most general publicity in this city (not a Physician, and scarcely an inhabitant of Baltimore, who does not know of the experiment), I think I may in honour bring it forward as authority. The experiment, in form, is nearly as follows: Two reptiles were procured, and unmolested (they remained on the bough taken from the tree), were applied to an old cat, in perfect health. There were several gentlemen present. The reptiles in appearance bit the cat. The following morning, the cat possessed her usual characters of health, and the Physician mentioned the experiment as unsuccessful. But the same day, in the afternoon, the cat refused to take aliment. In the evening, the Physician was professionally called from home, and did not return until early the next morning. On his return the cat was dead. When leaving home, he particularly charged his domestics to take good care of the cat. She was, in the house, of value, and somewhat of a favourite. Her head was much swollen, as were also the heads of the kitten and pig, which died under the experiments I witnessed; at least we conceived them to be so. A kitten that drew nutriment from the teats of the old cat above-mentioned, likewise died in eight-and-forty hours after its mother's death. The above particulars I had from the Physician himself. Were all the negative experiments accumulated into one scale, and this solitary one, with its circumstances, put into the other, they would be borne up as light and of no weight.

From the above, let it be understood, I do not conclude that the reptiles positively, by subtile poison or mechanical wounds, killed the animals experimented on, but that the affirmative successfully bear up against the flood of negative experiments, and raise the venomous properties of the Poplar-Caterpillar high on the scale of probability. If they do not decisively settle the question, which I do not, and have not advanced, they undoubtedly forbid all conclusions in behalf of the absolute innocence of the animal. But to proceed.

To elucidate the points still more, and afford countenance to what has been said, I will adduce a few authorities from the French and English Naturalists. Not, sir, thereby to put a taper into your hands; far from it: it would not be becoming in me to light your steps in science.

In the third volume of the Dictionnaire des Sciences we met with the following: "Il n'y a qu'un seul risque à courir en les touchant, c'est de rencontrer certaines chenilles velues dont les poils sont si fins, si roides, si fragiles, et si legers qu'ils se cassent aisément en petits fragmens qui se repandent tout autour des chenilles. Ces poils s'attachent sur les mains, sur le visage, sur les paupières, &c., ils causent sur la peau une demangeaison assez cuisante, qui dure quelquefois pendant quatre ou cinq jours, sur-tout lorsqu'on irrite cette demangeaison en frottant les endroits ou est la douleur. Souvent il se forme sur la peau des élevures," &c.

"In touching Caterpillars of a particular hairy species, there is but one hazard. Their hair is so fine stiff, brittle, and light, that they easily break into smal fragments, and are dispersed in every direction about the

Caterpillar. The hair attaches itself to the hands, face, and eye-lids, and causes an itching very troublesome and burning, continuing sometimes during four or five days, particularly on the part pained being rubbed. Often the skin rises into blisters," &c.

So far as relates to the fact, it is wholly unimportant whether the injurious properties of the reptile operate mechanically, disorganizing the body, or by way of an inscrutable subtil venom. The difference of the philosophy of the fact cannot effect its reality. How do the properties of the Spanish fly act; mechanically or chemically? From what, upon the sting of a bee or wasp, do the pain and tumefaction arise? To these we may add mustard, &c. Do these produce their separate injuries mechanically? Their properties are explained best by their effects. They are hostile and poisonous to the living principle. Nor would I take upon myself to decide whether, by a peculiar power of stimulation, they change the healthy excitability of the animal system, or by inscrutable chemical affinities mix with the fluids, and thus indirectly break up the structure thereof. I leave this to those gentlemen who are fond of unravelling clues of hypotheses, loose at both ends. It is of no moment, in the present business, what path we take, so we arrive in safety at our journey's end. We are in search of facts, not their peculiar philosophy.

Dr. Hawkesworth tells us, that, in the voyages in the tropical latitudes, they discovered a species of Caterpillar, which, " when the men touched them, they found that the hairs in their bodies had the quality of a nettle, and gave them a more acute, though less durable pain." Vol. 3, p. 520. Does the hair chiefly serve to break through the insensible epidermis, making access, for the subtil poison, to the organs endued with sensibility? If the hand were pricked a thousand times, with a very fine lancet, would the singular burning sensation arising from nettles be the consequence? Or would it continue four or five days? Let gentlemen decide for themselves.

Dr. Goldsmith, writing on a particular species of the Caterpillar, says, " and generally if handled it stings like nettles. Some of them even cause this stinging pain if but approached too nearly." Vol. 4, p. 207. Then it appears from this learned and cautious Naturalist, of great capacity of observation, and equal ability and integrity in detailing what he had observed, that a certain species does produce stinging pain without being touched: by means of an apparatus, no doubt, fitted by nature for the defence of the animal, or the means of taking its prey. Is this mechanical? even if the sting of the nettle be, which, I believe, few prudent Medical Philosophers would undertake to prove. Is it defensible from this, that in all ages, and by every writer " since the capacity of man to observe," that " the Caterpillar in all its varieties has been considered as innocent," or because it ends in a butterfly it must be harmless?

Of the particular manner in which animals may play off their batteries of mischief to our annoyance, and their own advantage, we, in many instances, must be content to be ignorant. We advance from the cause to the effect, or we return from the effect to the cause, and this is the sum of our knowledge. The key of nature is not committed to us, by which we might unlock the door of her secrets, and surprise her in her work-shop. We can ascend to truth only by industriously and warily piling fact on fact.

Smellie coincides with the writers already quoted, in his account of the vindictive and malevolent dispositions of Caterpillars. He, however, is a mere copyist, and only details what others have observed. He does nothing more than repeat the experiments of others. His history of their mutual attacks on each other, their cruel wars, and the destruction of the weaker by the stronger, is only a repetition of what Réaumur and others had long since given to the world. But from these accounts we nevertheless deduce a probability, that the malevolence, and force, and weapons, which served to inflict mutual death in their own species, might not be altogether useless in carrying on attacks against other animals, between which and themselves there might not be too great a disproportion.

Smellie is silent on the genera spoken of by Réaumur. He speaks generally, and, in a very confused, unintelligible manner, tells us of Caterpillars becoming flies and butterflies in the same sentence. We are frequently at a loss to attach any definite meaning to his words. This is not a small fault with either a historian or philosopher. This writer copies the anatomical opinion, that the circulation in the Caterpillar is from the tail to the head, and in the Chrysalid from the head to the tail. I am persuaded that his authority is incorrect, particularly, as in the Caterpillars I have dissected, the system of blood-vessels is rather transverse, coming in separate bundles from the holes of respiration, and not running, in the general, from the tail to the head. But more of this when I come to the internal structure of the reptile. The style of Smellie is graceful, flowing, and elegant; but he does not hold the rank of an authority. His work is a compilation.

It is now pretty well established, from authorities high and respectable in character, indeed in merit composing the first rank, that some species of Caterpillar are so venomous, or in some manner injurious (for whether they wound with their head or their tail is of no moment), that, when applied, they excite burning pain, inflammation, and blisters on the hand of an adult man, whose powers of life are high and vigorous. This being consented to, it certainly would not be extravagant to believe, on the face of the thing, that they might be fatal to a young and feeble animal, whose irritability is excessive, and whose range of system is very limited. In all our inductions, drawn from premises laid in general analogy, we should be extremely cautious and vigilant. But with the above authorities open before us, to conclude from a few negative trials that the Caterpillar, because it ends in a butterfly, cannot injure the smaller animals, is truly to attempt to obscure in the shade of the low brush-wood of our humble capacities, the bright beams of faithful history; is to raise a mound of the worthless materials of our own arrogance, in the way of the majestic stream of truth, flowing to us from fountains pure and clear.

Naturalists, so far as they have explained themselves, at least such as I have been able to lay my hand on, describe the Caterpillar as coming from the egg of the mother, a reptile, naked and exposed, without shelter, and without covering (from these are excepted, such as leave and return to their shelter); that it passes through life defenceless, a prey to its enemies, until it shall arrive at a certain state of maturity, and enter its aurelia state. The Poplar-Caterpillar is, in early life, in the first days of its reptile existence, *sheltered*, *defended by a case or husk*, *and remains in this habitation*, appended to the lower surfaces of leaves, *until it shall acquire about one-fourth of its growth*, when it affranchises itself, and roams abroad, seeking its subsistence. In this state it continues until its majority as a reptile, when it enters its chrysalis state.

Réaumur describes the Caterpillar as having six spots on the first ring, which serves for its head, and supposes it probable that they are eyes. The poplar reptile has in the place of six spots (six petits grains noirs), *two lines running from its mouth to the vertex of its head.* This reptile is from two and a half inches to three, measuring from its head to the extremity of its tail or body. It is of a chocolate colour; some are rather browner; is composed of two unequal cones meeting at the bases, and their junction is marked by a zone or band dissimilar in colour from the rest of the body. These cones are in themselves made up of separate membranous rings, united not so much by suture, as intussusceptio. The mouth of this reptile is vertical, being parallel with a line raised to a perpendicular from the horizon. Its jaws open laterally, and are irregular triangles. The sharpest points thereof form the teeth. A little below the teeth is the tongue, evidently muscular. The head is shelly, and the teeth like unto hair. The three first rings from the neck have six feet rising from them, three on either side. These feet are hooked and horny. A space here intervenes of about three-quarters of an inch, when other feet, eight in number, four on either side, grow out, each from the lower edge of the ring to which it belongs; they are not so much hooked as the first set. There is then a second space, about equal to the first, which is terminated by two feet, one on each side, and which constitute the tail extremity of the animal. These two last feet are *not wholly* membranous, as Naturalists have mentioned those of the Caterpillars to be.

The rings are not completely annular, but flatted on one part, forming the belly. This flatness is nearly one-half of the ring, and composed, as it were, of a band connecting the two horns of the ring. Where the annular form is broken into a kind of an angle the feet emerge. Over the back of this reptile there is fine hair, growing at the anterior part of the head to a considerable length.

Upon examining into the internal structure, this reptile is discovered to have a straight bowel, running from the head to the tail, without the least convolution. A little below the neck, this rectilineous bowel is somewhat enlarged in its volume, and may furnish, in the view of the Anatomist, a stomach. The bowel enlarges again near the vent. There are two muscles of more than an inch and a half in length, with each a fold, one on either side of the bowel. Each has a tendon reaching up to the neck, and also one descending to the tail; at which points they are firmly implanted. These muscles, no doubt, serve as instruments of motion, in the various acts of progression in which the animal is frequently engaged. The tendons, having their implantation at the head and the tail, and the muscular portions having folds, must admirably accommodate the animal in its travelling. Are these muscles ultimately transformed into wings?

The vascular system is, as to the animal, transverse. It comes out by pairs, like the nerves of the human body, and in bundles from the holes (stigmata) of respiration. The holes are placed along the sides, near the belly, and are numerous. They probably are in the place of lungs, and serve to oxygenate the blood. The bundles of vessels anastomose mutually with each other, and run chiefly between the bowel and the back. A few are longitudinal, connecting in their course branches of the various bundles. But there does not appear to be any one common vessel (aorta), from which the smaller ones might branch out, or into which they might be collected. There is neither heart nor brain discoverable on the minutest dissection; but from the sensibility of the animal, there must be a nervous system, although I could not discover it, either by the naked eye, or the eye aided by such glasses as I could procure. In the human body there is much which is discovered by great labour and attention only, although upon a much larger scale. And much we suppose may, and must, or we could not account for many phenomena, exist, which cannot by any means in our power be completely traced out.

Several of the poplar-reptiles I put into glasses; two have come out, and appear to be night-butterflies or moths. They are unlike any thing of the butterfly class I have ever seen. In the description which I intended, Dr. Vaughan has anticipated me. These, with others that have come out in the experiments of other gentlemen, satisfy me that I was wrong in my supposition that they were bastard Caterpillars. I most readily and willingly retract the error. Into this mistake I was led by the difference in the economy of the lives of the animals, as described by French naturalists, and as I found it to be, together with the dissimilitude of the eyes and last pair of feet. Is this animal a different species, or is it changed by climate or food? Or has it characters to us uncommon, because our views and subject are limited?

Dr. Vaughan mentions, that " the characters of this metamorphosed Caterpillar are not strictly conformable to those of the common butterfly." Those in my possession have their smaller wings bespangled with red. This the Doctor does not mention to have been among the characteristics of the one he has described. It is a misfortune that the Doctor did not give us the internal structure of his butterfly. I would add the internal anatomy, but it may not be delicate to enter on a province he has assumed to himself.

Baltimore, August 26th, 1806.

VII. *Case of Diseased Pancreas. Communicated to the* EDITOR *by* EDWIN A. ATLEE, M. D., *of Philadelphia.*

A. B., child of Wm. P. B., Columbia, Lancaster County, aged 4 months, was, about the middle of January last, affected with sudden loss of motion in the lower extremities, and of sensation in all that part of the spine below the first lumbar vertebra;—a pain from being placed on his left side, or in any other position than erect, or on the right side; and an almost incessant beating of his right arm against his side. A tenesmus and dysury, attended with excruciating pain, superadded to the other symptoms, rendered him truly an object of commiseration. He very early manifested something like spasm, by forcible retractions of the body, and contractions of the fingers.

About three weeks from the first attack, a hard swelling, about the size of a pigeon's egg, was discovered to the right of the fundus of the bladder, and about a week afterwards there was a discharge of purulent matter from the urethra, and an erysipelatous inflammation over the penis, perinæum, and nates.

In the beginning of April, another larger induration was discovered, which increased with considerable rapidity, until it appeared to take up almost all that part of the abdomen situated between the right hypocondria, umbilicus, and spine of the ilium. Fever very moderate, until this induration had arrived to the extent described. It was remarkable that the legs and feet retained their natural warmth, and his appetite for the breast continued until the day before his death.

From the complication of symptoms, a variety of remedies were administered, suggested by the appearances, as they presented themselves, and by the advice of Doctors May and Archer: such as warm bath, fomentations to the perinæum, cold bath, bougies, strong mercurial cathartics, &c.; and, lastly, an issue on the right side of the spine, about the first lumbar vertebra: but all without effect; and, after a tedious and painful illness of nearly three months, supported with unexampled patience, Death kindly liberated the little sufferer, on the 21st of April, aged seven months.

It may be worthy of remark, that from the birth of the child until the day before the attack, it manifested the highest health and vivacity.

Having obtained permission, from the parents of the infant, to examine it after death, on the following day, in the presence of Doctors Archer and M'Corkle, I opened the cavity of the abdomen; and the first object which presented itself, was the diseased *Pancreas*, which very much resembled, in size and form, part of the curvature of the colon in an adult subject, but, upon closer examination, was found to be the Pancreas, considerably removed from its natural position, being in the right hypochondriac and iliac region, between the liver and right kidney, and extending over the right kidney into the brim of the pelvis. It was in length about six inches, in breadth four, and in thickness two and a half inches. Its whole texture was schirrous, save in the centre, where there was a large collection of chocolate-coloured matter. At the larger extremity was a cyst, containing a thin fluid, about the quantity of two ounces, resembling urine discoloured with blood, the coat of the cyst being about the thickness of a healthy urinary bladder. To the whole upper or left side of the Pancreas was attached a portion of mesentery, in consequence of inflammation, to which a part of the colon and cæcum were connected. The adhesions were very extensive. Its upper extremity was attached to the under surface of the liver; its right surface to the integuments of the abdomen; its lower extremity partly to the right kidney, and partly to the cavity of the pelvis; and its lower side firmly to the right side of the spine.

The right kidney also, in consequence of its compression by the Pancreas, was inflamed and schirrous, having, in the centre, an abscess containing a quantity of bloody pus; this was attached, by inflammation, to the lumbar vertebra, and to the brim of the pelvis. The bladder appeared considerably less than natural; its coats were exceedingly thickened; and, upon opening into it, the cavity was so much lessened, as scarcely to contain two drachms of fluid. The other viscera, in general, were free from any appearance of disease, but the stomach and intestines were all distended with air, except which they appeared to contain nothing.

May 7th, 1807.

VIII. *On the Use of Datura Stramonium, in Dropsy. In a letter to the* Editor, *from* William Baldwin, M, D., *of Wilmington, in the State of Delaware.*

Dear Sir,

THE case of dropsy, cured by the Datura Stramonium, which I mentioned to you some time ago, and of which you desired a more particular account than I was then able to give, is as follows:

A. C., of York county, 55 years of age, of a robust but intemperate habit, by trade a stone-mason, had been afflicted with a dropsical complaint for upwards of a year. During this time, he had made use of all the common remedies for that stubborn disease, without any permanent effect. He had been twice relieved by the nitrate of potash; but this medicine, from its constant use, ceased to have a good effect, and injured the tone of his stomach, and relapses were speedily the consequence.

I first saw him on the 21st of July, 1803. At this time he had ascites, anasarca, hydrocele, and some symptoms of hydrothorax. His abdomen was greatly distended; his thighs, legs, feet, arms, and hands, in the same situation. In this deplorable condition, he was confined, for the most part, to his bed, supported with pillows, in an erect posture, being unable to lie down, from the difficulty of breathing which it occasioned. His pulse indicated a languid degree of febrile action, and the speedy approach of death to terminate his sufferings seemed inevitable. For a considerable time before I saw him, he had been attended by my late worthy preceptor, Dr. Todd, who again had recourse to nitre, in combination with calomel and tartar emetic; his legs were punctured, and his scrotum washed with saturine solutions. These remedies, however, had so little effect, that, with the consent of the Doctor, I resolved to try the effect of the Datura Stramonium. A very troublesome cough had now come on, and the symptoms, upon the whole, seemed rather aggravated.

I looked upon his case as desperate, but was induced to try this powerful medicine as a last resource, from having read, in the New-York Medical Repository, of the seeds having proved powerfully diuretic, in a case where they were taken accidentally. I dried a quantity of the leaves in the shade, and made them into pills with crumbs of bread, and commenced giving them on the 27th of this month. He began with two grains, and increased to four per day.

31st. He had now taken twelve grains, and complained of a slight nausea and pain in his head, but I was happy to find him much better: he had discharged water very freely, and his febrile symptoms had vanished. Feeling himself languid, and the cough troublesome, I ordered the pills to be suspended, and gave him a preparation of gentian and steel, with an anodyne to be taken at night. At the end of three days, he began to take the pills again as before, and continued to take them in the same manner for about two weeks longer. Whenever nausea and head-ach came on, I ordered them to be suspended, and gave the tonic preparation before-mentioned.

On the 11th of August, he paid me a visit on horseback (3 miles), and was so far recovered, that he began to think of pursuing his occupation again. His abdomen was nearly reduced to its natural size; his scrotum was entirely well; his thighs and one leg only remained to be a little enlarged; but he could walk and ride with ease. His cough had nearly left him. He had now a gentle lax, produced, as I apprehended, by the pills, as they had of late occasioned but little pain in the head or nausea. He continued the pills, and also the other medicines, for a little while longer.

I saw him again on the 30th: he had now, for some time, been labouring at his trade, having perfectly recovered, except a slight swelling of his hands and feet occasionally. Some time, as near as I can recollect, toward the latter end of autumn, he sent for me; but I was then, through indisposition, unable to attend him, and, in a short time after, I heard of his death.

This medicine would very probably fail in many instances, but it is surely worthy of further trial, in a disease which has so frequently baffled all the powers of medicine.

I am, &c.,

William Baldwin.

Wilmington, August 27th, 1806.

IX. *On the Use of Kino in the disease of Leuchorrhœa, or Fluor Albus.* *Communicated to the* Editor *by Mr.* Samuel Akerly, *of New-York.*

I. IN the winter of 1805—6, while attending Dr. Barton's lectures on the Materia Medica, I copied into my note-book the following words: "Gum kino, dissolved in lime-water, has been used in fluor albus." I think the Doctor did not dilate on the subject at the time, nor add any proof of its efficacy from his own experience.—*See the Note.*

When a case occured for my prescription, after my appointment of house physician to the New-York Hospital, the first thing that occurred to my mind was, the above, taken from my notes. I accordingly made trial of its efficacy, with success.

Matilda Blonk, a married woman of 24 years of age, had been afflicted with fluor albus for some months. When she came to the hospital, on the 12th of April, 1806, the discharge from the vagina was not very great, but it sometimes appeared of a dark or greenish cast. It had now likewise become offensive in smell, and she sometimes had the disagreeable sensation of passing wind through the vagina. This latter, perhaps, was hysterical, and altogether imaginary.

In this state I prescribed the following as an injection, without any internal remedies:

Gum-kino ʒii,
Lime-water ℥viij.

This was used four or five times a day, till the patient went away well on the 23d April, having been in the hospital one week and five days.

JANE SEAMAN.

II. A black woman, by the name of Seaman, was received into the New-York Hospital on the 15th July, 1806, with fluor albus. She was aged 23, and married. On her reception she was modest about her complaint, and feigned pains in her joints and limbs, which she referred to a cold she had taken. She was accordingly treated as a rheumatic patient, with guiacum internally; the volatile liniment and tincture of capsicum, externally, for two weeks, without effect. Growing weak by this time, she ventured to tell the seat of her disease, which had afflicted her for several months.

This being known, the same injection as for Matilda Blonck was given her, with the same directions. It soon checked the discharge, which was profuse, and the patient began to gain strength in a short time. In two weeks more, she was recovered, and discharged cured on the 14th August, being a month save a day.

SAMUEL AKERLY.

X. *Additional Facts and Observations, relative to the Extinct Species of American Elephants. In a letter from the* Editor *to Mons.* Cuvier, *of Paris.——See First Supplement, p.* 22—35.

P. S. I have just learned, that Professor Autenrieth, of Tubingen, has informed you, that he has found in America some teeth very similar to those of the African Elephant. I have pretty good reason to believe, that in making this assertion, or statement, the Professor has fallen into an error: for in a letter which he addressed to me, some years since*, he says, " I have seen, in the collection of Mr. Peale, some molares like the African elephant's. Are they, he asks, found in America?"

The molares, to which Mr. Autenrieth alludes, *were brought from Africa;* and, among the great number of large molares, of various kinds, that have been found in the United-States, I have not seen one that resembles those of the Elephas Africanus. But I do not assert, that such teeth do not exist in America. America *still* possesses *some* quadrupeds of the same species as those which are found in Africa; and few facts in Natural History are better established than this, *That many species of quadrupeds, and other mammalia, were once much more extensively diffused over the earth than they are at present.*

There is a passage in Mr. Catesby's *Natural History of Carolina*, &c., which would seem to show, that grinders similar to those of the African elephant have actually been discovered in North-America. After remarking that "all parts of *Virginia*, at the distance of sixty miles, or more, abound in fossil shells of various kinds," he says, "at a place in *Carolina*, called *Stono*, was dug out of the earth three or four teeth of a large animal, which, by the concurring opinion of all the *Negroes*, native *Africans*, that saw them, were the grinders of an Elephant: and in my opinion (he adds) they could be no other; I having seen some of the like that are brought from Africa*."

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* Dated October, 1797.

Mr. Catesby, I need hardly inform you, was by no means a very critical or perspicacious naturalist. In particular, he seems not to have turned any of his attention to what may be called the *anatomical* part of natural history. It would not be safe, therefore, to rely implicitly upon his testimony, in regard to the teeth found at Stono. Naturalists, much more nice and correct than Mr. Catesby, have often confounded the grinders of the African and Asiatic elephant with each other. As to the testimony of the negroes, who saw the Carolina teeth, I would perhaps be excused if I passed it by, altogether unnoticed. Yet to that testimony, I should not hesitate to attach some degree of value, were it not for the circumstance which I am now to mention.

Stono-Swamp, alluded to by Catesby, is in latitude about thirty-three degrees, north. At the distance of about ten minutes to the north of this, at a place called Biggin-Swamp, at the head of the west branch of Cooper-River, in the year 1795, there were dug up some large bones and teeth, which are (the teeth, at least) very different from those of the African elephant. These exuviæ were found at the depth of eight or nine feet below the surface of the earth; "and within a space not exceeding ten paces."

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* Page vii, at the end of volume II.

I have had an opportunity of examining some of these teeth. It is easy to perceive, that they are the exuviæ of two different animals: the one is the Ohio-Mammoth, your Elephas Americanus; the other is much more nearly allied to the existing elephant of Asia: perhaps, they are the teeth of your Elephas Mammonteus.

As these teeth, found so near to those of Stono, are essentially different from those of the Elephas Africanus; as similar teeth are found in many other parts of North-America, and often in the very same places; I think it is more than probable, that the teeth mentioned by Mr. Catesby were either those of the Ohio-elephant, or those of the elephant, which seems to have had great alliances with the *existing* elephant of Asia: most probably, they belonged to the same species which has left such abundant memorials of its existence in the north of Asia, the Elephas Mammonteus, or primigenius.

[illegible] there no other reasons for believing, that [illegible] allied to, if not precisely the same [illegible] existing elephant of Africa have been [illegible] North-America? Baron Humboldt did cer- [illegible] that he had found grinders like [illegible] placed in the country of Ame- [illegible] the numbers of the [illegible]

Museum National, this learned traveller informs us, that he saw an immense quantity of the fossil bones of this species of elephant, and also of the Ohio species, in the Campo de Gigante, near Santa-Fé*. I hope you will, before this note reaches you, have completely satisfied your mind on this interesting question. Meanwhile, at a distance from the theatre of your observations, I venture to say, that the teeth, &c., in question, were not those of the *African* elephant. The discovery of such teeth in America would greatly favour the hypothesis of those writers (the Abbé Clavigero among others), who suppose that there was once an equinoctial junction between the continents of America and Africa. But a thousand circumstances render this hypothesis extremely improbable; while, on the contrary, innumerable facts tend to show, that between the northern parts of America and the north-eastern parts of Asia, there was once a much closer and more extensive surface of connexion, or vicinity, than there is at present.

Having often alluded to the discovery, in America, of molares, &c., very similar to, if not the same with, those of the Asiatic mammoth, I take this opportunity of mentioning an enormous defense, or tusk, of this kind, that was discovered, some years since, in a branch of the river Susquehanna, near the northern boundary of the state of Pennsylvania.

The *entire* defense was not found; but a portion that was six feet nine inches long, twenty-one inches in circumference at the large end, and fifteen inches in circumference at the small end. It is incurvated nearly into an arch of a large circle; and it is conjectured that, in its entire state, it was nearly a semicircle of not less than ten or twelve feet. Certain it is, that the defense is imperfect at *both* ends; and it is probable, that between two and three feet have perished at *each* end.

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* Annales, &c., dixième cahier, p. 337.

I have not myself seen this enormous defense, but I place entire confidence in the veracity of those who speak of it; and I have seen a large molar tooth which was found in the same place, along with the defense. The tooth is, unquestionably, elephantine, and not, I think, specifically different from those of the Elephas primigenius. The defense itself is, I presume, one of the largest of which we have any account; certainly quite as large as that in the Geological Gallery of the Museum of Natural History at Paris, of which Mons. Faujas-St.-Fond has given us the admeasurements*.

It is a circumstance not unworthy of your notice, that the large defense of which I have been speaking, or at least some similar one, has given name to the river in which it was found. This river, one of the western branches of the Susquehanna, is called by the Wunaumeeh, or Delaware-Indians, Chemung, or rather Chemunk; that is, "the river of the Horn," or "the place where the Horn was found;" for *Shummo*, or *Shoommu*, signifies a horn, in the language of these Indians; and they consider the great defense as the horn of a monstrous serpent, which, they say, once inhabited this particular spot of the continent of North-America. So wild and extravagant are the traditional stories, or so imperfect the knowledge, of these poor people.

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* Essai de Géologie, &c., &c., tom. 1. p. 293, &c.

If it be allowable to judge from the progress which we have already made in the discovery of elephantine teeth, &c., in North-America, I should say, that the Elephas Americanus has been a much more common animal in this continent, than the species to which belonged the teeth, like those of Elephas primigenius. Certain it is, that of the former animal we have found more than thirty times the quantity of exuviæ that we have of the latter. It has been remarked, however, that the teeth, defenses, &c., of the supposed Elephas primigenius are, in general, much more decayed than those of the Elephas Americanus. This, I believe, is strictly true. Perhaps, therefore, it is not safe to assert, that the latter was really more common than the former of these animals. Perhaps, the one species was a more ancient inhabitant of the continent than the other. Perhaps, the texture of the teeth and bones of the Elephas primigenius is more feeble than that of the teeth, and bones, of the Elephas Americanus. Indeed, I think it evident, from an inspection of the grinders of the two animals, that it would require a greater length of time to decompose those of the Elephas Americanus, than those of the Elephas primigenius.

But the teeth, the defenses, and other bones of the former of the animals just mentioned, are sometimes found in a very mouldering and imperfect state. An intelligent traveller, who has recently returned from an extensive tour beyond the Missisippi, informs me, that in the country of the Osage-Indians, he came to a particular spot, in which were thousands of the bones of the Elephas Americanus. He collected about seventeen large defenses, several of which were six feet long, and twelve inches in diameter. But all these teeth, and the other bones, were in such a decayed condition, that so soon as they became dry, they fell into pieces, so that it was impossible to bring any of them away, except a few molares, of which, I am assured, near a cart-load might have been gathered. I send you one of these molares, which, as you will readily observe, is greatly altered: but it is not more altered than several others, from which I was permitted to select the one I have destined for you.

My travelling friend mentions a circumstance, with respect to the *position* of the bones (in the morass in which they were found), which you will not, I think, deem unworthy of your notice. He assures me, that all the bones, such as the defenses, &c., were disposed in a perpendicular direction; or, as he expresses himself, with their heads upwards. This circumstance has led him, very naturally I think, to suppose, that the animals, to which these bones belonged, must have sunk alive into the morass, whither they had resorted (like the animals which I formerly mentioned to you), for the purpose of licking and eating the saline earth, or of drinking the water. You will not fail to view this fact, relative to the position of the American elephantine bones, as a very interesting one, in other respects. Thus, allowing the fact to be correctly stated, no one will imagine, that the skeletons, to which these bones belonged, were conveyed to the morass in which they are found.

by a deluge, or by any other violent convulsion of nature. And from this fact, would it not seem somewhat probable, that the country, in which the bones so greatly abound, has undergone no very convulsive change, since the era (doubtless a remote one), when the American elephants, of which I am speaking, ceased to exist, in the country of the Osage-Indians?——But it is time to put an end to this long, and I fear too uninteresting, Postscript. I am confident it will be less acceptable to you than the fine Tooth, which accompanies it.

Your's, &c.,

BENJAMIN SMITH BARTON.

Philadelphia, 1806.

To Mr. Cuvier.

XI. *Observations on American Locusts. Communicated in a letter to the* EDITOR *by Dr.* CALVIN JONES, *of Raleigh, in North-Carolina.*

EARLY in the month of May, 1803, a species of Locusts made their appearance in the middle and western parts of this State; and, I believe, also in the States adjacent. In door-yards and fields, which had been cleared within a few years, they were seen to rise up out of the earth, in great numbers, and the ground was every where filled with innumerable perforations, by which they had ascended. These holes sometimes penetrated to a great depth. I have been informed, that, in sinking a well, they were traced twenty feet deep.

The vulgar opinion which is entertained here of these insects making subterranean expeditions to and from Egypt, which are regularly accomplished in fourteen years, is noticed only for its extravagance. Goldsmith, Buffon, Shaw, and other writers, inform us, that, in Egypt and Palestine, the Locusts usually descend about four feet; but as the species which have appeared among us, have sometimes been ascertained to penetrate to a much greater depth, it is probable that they are regulated, in that particular, by the humidity of the soil, or some other circumstances necessary to an agreeable residence.

When our locusts ascend, they seem not to be retarded or turned aside by any obstacle. They have been known to penetrate a brick-hearth, and even through several bricks in a kiln.

When they first emerge, they are of a dusky brown colour; they move slowly, and seem incapable of much activity. They present an appearance of wings, but entirely too small to support them in flight. After being somewhat invigorated by half an hour's exposure to the sun, they travel to the first fence or tree, near them, up which they crawl six or eight feet, attach their claws firmly to the wood, or leaves; the case, or outer skin, splits along the back, and the locust marches out, leaving his shell behind him, as firmly affixed as at first. He now moves, and gradually expands his wings, and in an hour is generally capable of flight.

This locust is about an inch and a half in length. The head and thorax are black, and the abdomen of a dark brown colour. There are two hard and red prominences on the head. The proboscis is about half an inch in length, is closely pressed down to the chest, and admits of little elevation. The abdomen is about an inch in circumference, and lamellated. The males, at the junction of the thorax with the abdomen, have a kind of drum or tambourin, of a thin membranous texture, with which the locust, by imparting to it a tremulous motion, produces a shrill, jarring sound, which is usually continued a quarter of a minute, and renewed at pleasure.

Of this musical organ the female is destitute. She is furnished with a strong and sharp horn, about a quarter of an inch in length, which proceeds from the inferior part of the abdomen, a little more than the length of the horn from its extremity. This instrument lies close to the abdomen, in a sinus made to receive it; but it can, at pleasure, be elevated to describe an angle of 45 degrees.

These locusts, as I have already observed, made their first appearance early in the month of May. They were seen only in the middle and western parts of the state, where the lands are hilly, the soil of a reddish colour, and the timber-growth principally oak and hickory. I saw them only in the vicinity of this city, where the growth is as just described, intermixed with pine. Here they were extremely numerous, flying about in every direction, near the tops and middle-branches of the trees. Their united noise was very loud and incessant, and from the time the morning dews were evaporated to sun-setting, it resembled a perfect charm, resembling thousands of small bees.

These insects did not appear to be any way injurious to vegetation. Some of them were quite empty, and others were filled with a viscid lymph, which was supposed to be extracted from the leaves or bark of the trees; but I could never detect one with his proboscis inserted into any substance, and from its compression to the body, it did not seem well calculated for that purpose.

About the first of June, the females deposited their eggs. They first made incisions in the bark of hickory, oak, or apple-trees, with the horn above described, from three to six inches in length. In these they deposited their eggs, which were small, hard, and spherical. About the middle of the month, the locusts began to lose their activity, sung less, and did not soar so high. I saw them in a hard rain, which happened about this time, beaten down to the ground by it, where they were devoured by hogs. They now began to die *naturally*, and before the end of June, they entirely disappeared. In many places, hogs, for some time, wholly subsisted upon them. In the flat, sandy, and swamp land, about Smithfield, where I then resided, and the whole eastern part of the State, one of these locusts was rarely seen; and it is remarkable, that among those which I saw in the hilly country, I never observed one to rest even for a moment upon a pine-tree, though I have seen hundreds, at one time, perched upon a single oak.

I have been informed, by a great many persons who witnessed the fact, that, exactly fourteen years before, locusts of this species appeared in this State and in Virginia, in the same manner that they have done the present year; and I heard a gentleman predict, before the locusts actually came, that they would make their appearance, at the time they did, from his knowledge of the periods of their visitation.

It has been said, that caterpillars were the first product of the eggs of the locust, and that they underwent various transformations, annually, for fourteen years, when they again appeared in the locust-state. This opinion I am unable to confirm or invalidate by any observations of my own.

These locusts differ essentially from those which make such destructive ravages in the East. 1. These do not travel, before they leave their first covering. 2. They fly in no particular direction. 3. They have no jaws, and are, therefore, incapable of destroying vegetation.—They also differ materially from those which make their annual, and comparatively solitary, appearance here.

I believe that locusts, of the kind that I have here imperfectly described, have never yet been noticed by naturalists. By the publication of this account, some who have leisure and talents for observation, may, perhaps, be excited to prosecute an inquiry into their habitudes and nature, which, by particular circumstances, I am now precluded from the possibility of attempting.

Raleigh, North-Carolina,
August 25th, 1806.

XII. *Agricultural Memorandums and Observations. Communicated in a letter to the* EDITOR, *by his Brother, Mr.* RICHARD P. BARTON, *of Frederick-County, in Virginia.*

AS you devote a share of your attention towards the diffusion of Agricultural information, I will state to you some facts, which show that the disease which, I believe, is called, in England, Smut (perhaps Blight), may be prevented by a simple process in the preparation of the seed-wheat. At the same time, I must observe, that I do not state to you a remedy hitherto unknown: on the contrary, that Young (in his *Farmer's Tour)* mentions this remedy as being sometimes applied with a view to guard against smut. In the case I am going to mention, it was applied with different views; for the smut is a disease scarcely known in Virginia.

Last fall, a waggon-load of wheat was brought from Red-stone (in Pennsylvania) to exchange for salt. My neighbour, Mr. C., the miller, purchased the load. I was so much pleased with the beauty of this wheat, that I procured two bushels of it to sow. Previously to sowing it, I steeped it in strong salt-brine, and then sifted on it as much quicklime as would adhere to it. This is my usual practice with all my wheat, unless I use plaster instead of lime. My intention, in both cases, is to forward vegetation, and produce vigorous plants, to guard against the Hessian-Fly, and the injuries of the succeeding winter's frosts. Mr. C. also sowed a few bushels of this wheat; so did a Mr. S., another of my neighbours. But in the two latter cases, neither brine nor lime was applied to the seed. In every case, the soil was the same, and the seeding done in good order, and in good time. Just before harvest, Mr. C. complained, that his Red-Stone wheat (and that only) was materially injured by what he believed to be Smut. A large proportion of the head, though apparently fair, contained a black powder instead of a farinaceous substance. Shortly after, Mr. S. made the same complaint, and declared that he would not sow the same wheat again. Upon examining mine, I found it perfectly free from smut, or any other disease, and the grain of an extraordinary good quality. I have thrashed out this grain lately, and never saw wheat of a finer sample. Its exemption from smut may, I think, be fairly attributed to the preparation of the seed-wheat.

Frederick-County, Virginia,
September 22d, 1806.

XII. *Case of Cancer successfully treated with Arsenic. Communicated in a letter to the* EDITOR, *by Dr.* GEORGE STEVENSON, *of Pittsburgh, in Pennsylvania.*

A CASE of Cancer having been lately successfully treated, in an unusual manner, I have thought proper to communicate it to you.

Mr. R., in his 73d year, applied to me for the cure of a cancer in his lip, of twelve months standing. The lip was so enlarged as to project beyond the chin, was painful, and in a state nearly callous.

Mr. R. being unwilling to submit to the knife, I proposed to attempt the removal of the cancer by ligatures, to which he acceded. Six ligatures were, accordingly, used, which embraced the whole cancer. They were gradually tightened, as circumstances permitted.

Arsenicum album, in form of an ungent, with Axung. Porc. was daily applied to the edges, and pills of the same mineral with opium, in doses of one sixteenth of a grain, administered internally three times a day, for nearly six weeks.—Poultices of milk and bread were occasionally applied. A suppuration took place; the parts without the ligatures separated from the sound parts, and afterwards a *stratum* of a quarter of an inch in breadth, leaving the parts beneath perfectly smooth; granulations formed a new lip so complete, that there is scarcely a vestige of the disease visible.

From the use of the Arsenicum album, the head became repeatedly affected with pain; the face and neck considerably swelled; but these symptoms gave way to purgatives.

Pittsburgh, May 25th, 1807.

XIII. *Additional Facts and Observations, relative to the American Locust. By the* EDITOR.

THE Locust of which Dr. Jones has given us an account, and which he seems to think has not been noticed or described by naturalists, is unquestionably a species of Cicada, or Tettigonia, and I presume the Cicada septendecim of Linnæus: the Tettigonia septendecim of Fabricius. Of this curious insect, the reader will find some interesting notices in the first part of the first volume of this *Journal**.

It is not necessary to take up any time in showing, that the American locust is very different from that which, for some thousands of years, has excited so much attention in the countries of the East: which is so eloquently described in the Ancient Scriptures; which occasionally visits, in great swarms, the countries of Europe, and which there are *some* reasons to believe, is not unknown in the western parts of North-America, and even in some of the countries of Mexico*. The Locust of the East is the Gryllus migratorius of Linnæus. It not only differs *generically* from the North-American Tettigonia, but the two animals are totally distinct from each other in some of the most interesting circumstances of their natural history.

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* See numbers xv, xvi.

The following are the descriptions of these two insects, as they are given by Linnæus, in the *Systema Naturæ:*

CICADA (septendecim) nigro-virescens, elytris margine flavrescente, capite utrinque octo-striato. *Tom.* 1. *pars* 11. *p.* 708.

Gryllus (migratorius) thorace subcarinato: segmento unico, capite obtuso, maxillis atris. *Tom.* 1. *pars* 11. *p.* 700.

Fabricius, it has already been observed, considers our locust as a species of Tettigonia. Of this genus we have, in the United-States, several species, besides the T. Septendecim, the immediate subject of these notes, or memorandums. One of these, the Tettigonia Tibicen of Fabricius, is the large and beautiful insect called, in Virginia, the "Dry-Fly," the male of which regularly begins its shrill and loud note in the neighbourhood of Philadelphia, between the first and seventh of July; generally about the *seventh* of the month.

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* See Journal, Part First, p. 137—144.

Dr. Jones was informed, that the locusts have been found at the depth of twenty feet under the ground. In some parts of New-Jersey, they have been found at the depth of seventeen or eighteen feet. But, in general, they do not penetrate so deep. They are often seen ten feet below the surface. I have supposed, that they generally penetrate lower in the northern than in the southern parts of our continent; but many facts must be collected before this point can be fully determined.

It is certain, that the depth to which they penetrate is much influenced by the soil of the district in which they make their appearance. In many parts of Maryland, Virginia, &c., it would be impossible for the whole of those which do enter the ground to penetrate to the depth of even six or eight feet; owing to the superficial position of the calcareous strata, which extend for miles, in succession, through the country.

Fourteen years is said to be the interval between the periodical returns of the locust. I believe seventeen years is the more regular period. Within my own remembrance, the interval has been exactly seventeen years, in Pennsylvania and New-Jersey, in the same districts of each of these States. In New-Jersey, about Elizabeth-Town, &c., they made their appearance, in very great numbers, in the latter end of May, 1792. Previously to this, they had appeared, in the same neighbourhood, three different times, within the remembrance of some of the oldest of the inhabitants; and the intervals between their returns had been exactly seventeen years. Linnæus seems to have been well informed, when he denominated this insect, Cicada *Septendecim.*——It is highly probable, however, that the periods of the insect's return do vary according to the heat of the climate, and other circumstances. It is reasonable to suppose, that the interval is shorter in Georgia and Carolina, than in Pennsylvania, New-Jersey, &c.——At what depth have these insects been observed in the Peninsula of East-Florida, &c.?

The locusts have been known to make their appearance *in* the city of Philadelphia, in great numbers, penetrating from their long subterranean residence, between the bricks of a pavement. Seventeen years before this occurrence, the spot, now paved, had been an apple-orchard, where the locusts had generated, deposited their eggs, and died.

Dr. Jones observes that "these insects did not appear to be any way injurious to vegetation." It is, I believe, quite certain, that the Tettigonia, after its resurrection from the ground, eats nothing at all: and, of course, it cannot prove destructive to the vegetation in the manner that Gryllus migratorius, and many other insects do. But, the locusts have been known to prove very injurious to vegetation, in many parts of the United-States.

Even in North-Carolina, these insects have been known to do great injury to the apple-orchards, and to the oak-trees of the forest. So, at least, I have been informed by my friend Alexander Martin, Esq., formerly Governor of that State.

This injury is effected by the female. In depositing her eggs, she makes incisions in the twigs and branches of the trees, which ultimately occasion the death of those twigs, &c., *above* the wounded parts. This will the more readily be believed, when it is known, that the incisions are not merely superficial, or through the bark. They often extend as deep as the medulla, or pith, of the twig.

In travelling through a part of the State of New-York, in the year 1797, I was capable of pointing out, by the dead twigs and leaves of many of the forest-trees, the ravages which had been committed by the locusts, more than two months before. But the injuries are still more obvious in young apple-orchards, which are sometimes nearly destroyed by these insects.——I have, in a memoir presented to the American Philosophical Society, pointed out the best means of *preventing* the injurious effects of the locusts, among young and useful trees. This memoir will be published in the Society's *Transactions*.

It is a fortunate circumstance, that an insect capable of doing the injuries which this does sometimes occasion, is the favourite food of various species of animals. Immense numbers of the locusts are destroyed by the hogs, some weeks before the period at which these insects emerge from the ground: and after they have appeared, they continue to be the food of hogs, and are greedily devoured by the different species of squirrels, such as Sciurus cinereus, S. striatus, &c. Even cats and dogs eat them. Birds of various kinds are also fond of them.

The inhabitants of our country also collect the locusts, and apply them to different purposes. The Cheerake, and other Indians, collect them immediately after they have emerged from the earth, and after frying them, bring them to their tables, as a delicate dish.—— As they abound in oil, advantage has been taken of this circumstance, to make soap of them. To this use the locusts have often been converted in New-Jersey, and other parts of the Union. And when we consider the innumerable swarms of these insects which often appear in the country (*every year*, I think, in some part or other of the United-States), and the great facility with which they may be collected, even by children, it is rather surprising that the locusts are not more employed than they are in the manufactory of soap, &c. Might not their oil be applied to making of candles?—I approve of the economy of the Indians in eating them. That which is so highly agreeable to such a variety of different species and families of animals, can hardly be unpalatable to man.

The opinion that caterpillars are "the first product of the eggs of the locust;" or, at least, the opinion, that there is somehow a necessary connection between the appearance of these larvae, and the disappearance of the locust, seems to be pretty general in the United-States. It is, indeed, a fact, that vast swarms of different species of caterpillars often infest the forests and gardens of the country, the year immediately succeeding that in which the locusts have been in the same district.—But it is not necessary to take up any time in proving, that these two animals are no way transmutable into each other.

There are other opinions relative to the locusts not less extravagant than the one just mentioned: such as that after the insect is hatched, it descends, from the branch in which the parent egg was deposited, between the wood and the bark, into the earth.

Dr. Jones mentions a curious fact; that he "never observed a locust to rest, even for a moment, upon a pine-tree, though he has seen hundreds, at one time, perched upon a single oak." I have myself been assured, that the female never deposits her eggs in the pine, or any other of the cone-bearing trees allied to it. I consider this as a proof of the instinctive intelligence of the locust. Were the female to deposit her eggs in the twigs of such trees, abounding with a strong viscid resinous matter, they never would be hatched; or, if hatched, great numbers of the young would perish.

XIV. *On the Use of the Anagallis Arvensis, as a Remedy for Hydrophobia.—In a letter from Mr.* LOCHMAN, *of Lebanon, in Pennsylvania, to Mr.* ISAAC HIESTER, *Student of Medicine, in Philadelphia. Communicated to the* EDITOR *by Mr.* HIESTER.

CONCERNING the remedy which the late Dr. Stoy used, and which his widow still uses, in the cure of the Hydrophobia, I can inform you, that it is here supposed, by a great majority of the people, to be infallibly successful. I know of *no cases* that have o curred, since I have resided at Lebanon, in which the symptoms of the madness were perceptible: but I know of *many* where people and cattle had been bitten by dogs, which were really mad, and which were cured by Mr. Stoy's remedy.—I myself had a horse and a cow bitten by a dog, which had bitten no less than twenty in the town and neighbourhood. I applied to Dr. Stoy, and used his remedy, and the horse and cow continued perfectly free from the disease.

I have also been told, by persons residing here, that Mr. Stoy had cured persons really mad, who had been brought to Lebanon, tied by ropes, and held by strong men, and who had the paroxysms of madness several times. Mrs. Stoy possesses several certificates of such cases.

About the remedy itself I know so much, that Mr. Stoy used the very same herb, which Mr. Kittering (of our county) made known to our Senate, a few years since: but, I believe, he also made use of several other ingredients: at least, he said so. Mr. Kittering used nothing but the herb, in a pulverized state; but Mr. Stoy boiled it, and the other ingredients, in strong beer.

Lebanon, July 19*th*, 1806.

The plant which Mr. K. made known to the Senate of Pennsylvania, was no other than the Anagallis arvensis, or common Red-Pimpernel, known, in the United-States, by the names of the Red-Chickweed, Sea-Pink, &c. In Europe, this vegetable has long been used, and at one time maintained a very high reputation, as a remedy for hydrophobia. That it has really, *in any instance*, prevented, or cured, the dreadful disease for which it has been so strongly recommended, we do *not* believe. But we are not unwilling to publish the testimony of respectable persons in favour of it: and the testimony of Mr. Lochman is deserving of *some* attention. —In the first part of the second volume of this *Journal**, we have given a very circumstantial detail of a case of hydrophobia, which terminated in death, notwithstanding the unfortunate person took considerable quantities of the Anagallis, very soon after the bite, which produced the disease, was inflicted. We do not mean to say, that it would be an easy matter to adduce *many* similar instances of the failure of the Pimpernel; partly because it is a fact, that uncommon pains have been taken to uphold the reputation of the plant; and, it need hardly be added, that some persons who have taken the medicine, had been bitten by dogs, *not* mad: and that dogs really *mad* do not *always* produce hydrophobia.

EDITOR.

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* Article XXII. p. 122, &c.

SECOND SUPPLEMENT

TO THE

PHILADELPHIA

MEDICAL AND PHYSICAL JOURNAL.

SECTION SECOND.

MISCELLANEOUS

FACTS AND OBSERVATIONS.

NATURAL HISTORY.

ZOOLOGY.

Mammaliology.

1. THE Editor has lately ascertained, in the most satisfactory manner, that the Californian animal called *Tayè*, of which some account is given in a former part of this *Journal**, is, as Professor Zimmermann suspected, thirty years ago, the Argali of the Kirgisian Tartars: the Ovis Ammon of Linnæus: the Mufflon of Buffon.—From the lights which we now possess, it is certain, that the Tayè, upon which some of the Americans have bestowed the appellation of the "Big-Horn," is an inhabitant of three quarters of the globe, and that it has once been most extensively diffused over the earth.—The existence of this animal, in the western parts of North-America, was known to the Spanish historians, prior to the year 1633.

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* Vol. II. Part I. Art. XVIII. p. 106, &c.

Mr. E. Geoffroy, who has given some account, together with a figure, of this animal, in the *Annales du Museum National d'Histoire Naturelle**, considers it as a new species of Ovis. But the "Belier de Montagne," as this naturalist calls it, is, unquestionably, the Ovis Ammon.—Mr. Geoffroy's figure, with a few exceptions, may be considered as a very good one. The same remark applies to the figure republished in the *Journal*, from the work of Venegas.

The Argali is called by the Knisteanaux-Indians, *My-attic*, which signifies the "Bastard-Stag." Others of the Indians denominate it *Ema-ki-ca-how.*

A complete description of this North-American animal, with an account of its manners, food, period of life, &c., &c., would be a very acceptable present to Zoologists.

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2. Among the animals which Captains Lewis and Clark met with, or of which they received specimens, in their arduous journey, across the continent of North-America, there is one which cannot fail to prove interesting to the naturalist. It is a species of the genus Antelope. The existence of this animal, as a native of North-America, has been hinted at by several writers, more than one hundred and fifty years ago. Its horn is figured by A. Seba, in his *Thesaurus*, and a tolerably

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* Tom. II. p. 360, &c.

good figure of the entire animal was published as early as the year 1651.

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3. Besides this, there is, at least, one other species of Antelope in the western parts of North-America, to the south of the Missouri, where they are said to be numerous. They have also been seen, but less plentifully, about the mouth of the Arkansaw-river, which empties itself into the Missisippi, nearly in the latitude of 33° 50′. But this species is not so well known to us as the first mentioned one.

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Amphibiology.

4. The Editor has nearly completed his obervations and inquiries relative to one of the species of Siren, or Proteus, which inhabit the swamps, and muddy grounds of the Carolinas, and other parts of the United-States. He has ascertained, in opposition to the assertion of the celebrated Professor Camper, that this animal is furnished with a very extensive system of Lungs, by which, as well as by its *Appendices fimbriatae*, or bronchial apparatus, its respiration is carried on. The Editor has transmitted the result of his observations concerning the Siren to Europe, where, it is probable, they will be published.

5. A very large species of Salamander has been discovered in the lakes Ontario, Erie, &c., and also in the waters of the Ohio and Susquehanna. It seems, however, to be especially confined to the lakes, and to the waters of the Missisippi, including those which empty themselves into the Ohio. Its common length is from twelve to sixteen or eighteen inches. Sometimes, however, it is met with of a much larger size. Its head and body are very flat: its mouth large, and furnished with teeth. The feet are four in number, and very different, in their structure, from the feet of any other species of the genus. The tail is compressed, and well calculated to assist the animal in swimming. Its body is covered with a milk-like fluid, which it emits at pleasure, and which seems to be of a resinous nature, as in Salamandra subviolacea, &c.

This animal, which is known to the inhabitants of the western parts of the United-States, by the names of Alligator, Hell-Bender, &c., is purely aquatic, and is often found at the depth of ten or more feet under water.[*] It is, however, capable of living out of the water for a considerable time: I am informed, for at least twenty-four hours. It is frequently caught by the hook that has been baited (with meat, &c.) for cat-fish (Silurus), and other kinds of fish. It lives upon small fish, worms, insects, offal of various kinds, &c. It is reputed poisonous: but, it is believed, there is no good foundation for this opinion. It is often killed by the fishermen, by the instrument which they call a gigg. It is not eaten, though its flesh is white, like that of an eel. It is, indeed, an object of detestation, both among the White and the Indian inhabitants. Some of the latter call it *Tweeg.*

When it swims, its motion is slow and serpentine-like. From this circumstance, it has received one of its names (chiefly, I think, among the negroes), viz. Hell-Bender.

The Editor is preparing for publication, a full account of this species of Salamandra, to which he proposes giving the specific appellation of S. *horrida*. It is probable, however, that a better specific name may be thought of. As the largest species of the genus, it may not be improper to name it Salamandra *maxima*, or S. *gigantea*.—The account will be illustrated by very accurate engravings of the animal, figured of the natural size.

MEDICINE.

MATERIA MEDICA.

6. The Frasera Walteri, of which, as an article of the Materia Medica, the Editor first gave some acount in his *Collections**, some years since, is now much employed, by physicians and others, in the western parts of the United-States Its root is a good and pretty pure

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* Part Second, page 16.

bitter, and is, certainly, deserving of a place in the shops of the American apothecaries.

* * *

7. A new and very important addition to the number of the Errhine medicines has lately been made by the discovery of the properties of a very common North-American plant, the Helenium autumnale of Linnæus. The errhine power resides in the leaves and in the flowers, but especially in the latter. This Helenium is known, in some parts of the United-States, by the names of "Sneeze-weed," and "Snuff-Plant." It is eminently deserving of a place in the shops.

LITERARY INTELLIGENCE.

THE PHILADELPHIA LINNEAN SOCIETY, established at Philadelphia, for the promotion of NATURAL HISTORY, at a meeting in the month of March, last, resolved "that a member be appointed to deliver an Oration, in which are to be particularly pointed out the Desiderata in Natural History, and the best means to be pursued for the Advancement of the Science."

In obedience to the request of the Society, the member appointed delivered the Oration, on the 10th of June, in the presence of the Society, of the Trustees and Faculty of the University of Pennsylvania, and a considerable number of other gentlemen. The Society having thought proper to order the discourse for publication, the same is, at this time (June 23d) in the press, and will be published with all convenient speed.

* * *

His Excellency Chamberlain Sehested, of Copenhagen, has enriched the Library of the Editor of this work with a copy of that great and important botanical work the *Flora Danica*, in seven folio volumes, containing 1260 plates: and, likewise, with a copy of two other valuable works, the *Zoologia Danica*, and the work of the celebrated Muller on the *Animalcula Infusoria*.

To the Physicians of the United-States.

The Subscriber, anxious to be instrumental in promoting and diffusing the knowledge of the medicines of this country, will give thirty acres of good land for that purpose, on the following terms:

Any gentleman who will write the best and most simple account of all the means of giving tone or strength to debilitated persons, without the aid of Peruvian bark, wine, or foreign medicines, shall have deeded to him twenty acres.

And he who will write the best and most simple account of the substitutes for foreign Cathartics, found in this country, with the means of preserving and exhibiting them, shall have ten acres.

It is desired that the papers on these subjects may be sent to this place (postage paid). The names of the candidate may be sealed in a note, which shall only be opened in the cases where the prizes are adjudged. Doctors Rush and Barton, of Philadelphia, and Dr. Miller, of New-York, with the subscriber, will in the course of ten months, announce to whom the land shall be given—taking care that plainness in the writing, and truth in the statement of facts, be very necessary qualities in the papers examined.

The land which will be awarded, is about two miles from the Potomac, in Virginia, and five miles from this city. It is now worth near 500 dollars, and from its situation is fast improving, with the towns of the neighbourhood. But it is presumed the present value will not prove so strong a stimulus to exertion, as the receiving property on such honourable terms, near a place, destined to be the punctum saliens of the sciences, as well as the government of the nation.

THOMAS EWELL.

Washington, 15*th June*, 1807.

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SECOND SUPPLEMENT

TO THE

PHILADELPHIA

MEDICAL AND PHYSICAL

JOURNAL.

COLLECTED AND ARRANGED

BY BENJAMIN SMITH BARTON, M. D.,

PROFESSOR OF MATERIA MEDICA, NATURAL HISTORY, AND BOTANY,
IN THE UNIVERSITY OF PENNSYLVANIA

JULY, 1807.

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1807.

BE it remembered, that on the seventeenth day of July, in the thirty-second year of the Independence of the United-States of America, Andrew Conrad, of the said district, hath deposited in office the title of a book, the right whereof he claims as proprietor, in the w s following, to wit: "Second Supplement to the Philadelphia Medical and P ical Journal. Collected and arranged by Benjamin Smith Barton, M. D., Pr essor of Materia Medica, Natural tory, and Botany, in the University of ennsylvania. July, 1807," in con- o an act of congress of the Unit States, entitled, "An act for the nent of learning, by securing t opies of maps, charts, and books ors and proprietors of such cop during the times therein mentionlso to an act, entitled, "An supplementary to an act, entitled, for the encouragement of learni g, by securing the copies of maps, charts, and books to the authors and proprietors of such copies, during the times therein mentioned,' and extending the benefits thereof to the arts of designing, engraving, and etching, historical and other prints."

D. CALDWELL,
Clerk of the District of Pennsylvania.

THIRD SUPPLEMENT

TO THE

PHILADELPHIA

MEDICAL AND PHYSICAL JOURNAL.

SECTION FIRST.

THIRD SUPPLEMENT

TO THE

PHILADELPHIA

MEDICAL AND PHYSICAL JOURNAL.

I. *Mineralogical and Chemical Account of the Yellow-Springs, in the County of Chester, in Pennsylvania. Communicated to the* EDITOR, *by a Gentleman now on a Mineralogical Tour through the United-States.*

Philadelphia, August 15*th*, 1808.

SIR,

I HAVE the honour to enclose you a few Observations on the Qualities of the Yellow-Springs, in the neighbourhood of this city. They are the result of some experiments, made during a short excursion to that agreeable place; and, perhaps, have nothing to recommend them so much as a scrupulous attention to accuracy. If they are thought deserving of a place in your useful *Journal*, they are extremely at your service, and I shall think whatever time I have bestowed on the subject not altogether misapplied.

I am, Sir,
Your very respectful humble servant,
M.

Dr. B. S. Barton.

Nature having been liberal in the distribution of her favours through the whole extent of this continent, it is only to be lamented, that her productions have not been examined with that attention which they deserve. But as the knowledge of chemistry becomes more generally diffused, it is natural to expect that this science will hereafter be applied, not only to the improvement of the arts, but to the elucidation of many of the productions of nature.

It will readily be allowed, that no subject is more interesting than an investigation into the nature and properties of mineral waters: but though no country, perhaps, can claim a greater proportion of useful and valuable springs than America, still the qualities of these are, as yet, but imperfectly known or described. Many of them have already grown into notice through the common consent of popular opinion; they have thus become a fashionable resort, and are used, without distinction, by the invalid of every description. While the physician is unacquainted with the qualities of these waters, it is obvious, that he can never prescribe them with judgment; and it is equally apparent, that the promiscuous and too general use of them must be frequently attended with danger, which can only be avoided by a perfect knowledge of their nature and properties. It is to be regretted that the scientific and practical physician cannot always find leisure for such investigations: confined, as he must be, to the circle of a large city, he is unable to visit those springs at the fountain. But if the general properties of them are pointed out to him, by the experimental chemist, his judgment will easily decide on their qualities.

It thus becomes highly interesting and necessary for those who have any chemical knowledge, and visit these springs, to examine their contents, and, by describing their most obvious qualities, lead the way for future investigation. With these intentions, I have undertaken the following experiments on the Yellow-Springs, in Pennsylvania, from which if I have drawn conclusions different from the general opinion, I beg at least that they may be treated with candour, till it has been ascertained, by others, that they are unfounded. Having, however, no favourite theory to support, and being perfectly uninfluenced by prejudice or self-interest, it may be expected that my inquiry should be conducted on the principles of an impartial judge, rather than a popular advocate.

The situation of the country in the neighbourhood of the Yellow-Springs is highly picturesque. The grounds are elevated, and healthy. The Springs are situated in a valley, surrounded by hills, which are chiefly composed of granite, in a great variety of combinations, binary, ternary, and quaternary; but the principal combinations are felt-spar and quartz, occasionally interspersed with mica, and sometimes with small particles of fibrous schorl.

In the hills to the north-east of the Spring, are found large masses of trap, sometimes of a columnal form, generally quadrangular, internally of a greyish black colour, and externally covered with a brown crust, or oxyd, evidently from decomposition, and resembling basalt in all its characters. Some of these rocks are interspersed with minute crystals of felt-spar, and others contain horn-blende. These stones are found in abundance, scatterred on the surface of the ground, in every variety of form. They are extremely hard; when broken, their structure is compact, and often presents distinct granular concretions: they have also the quality of being sonorous when struck with a hammer.

I have met with no iron ore, nor any metallic appearance, in the neighbourhood. It has been supposed, that the low grounds contain a quantity of bog iron ore; but, as far as I have observed, this appearance arises from an ochery deposition, which attends the course of the waters wherever they flow, and which has been gradually accumulating to its present state.

The mineral water which is the subject of this inquiry arises from a small spring, nearly on a level with the rivulet which runs in the same valley. The source of it is not, perhaps, far distant, as its temperature is not steady, being materially altered, either by rain or by vicissitudes of the weather. In May, I found its temperature to be 52°, while the thermometer in the shade stood at 74°; on the 20th of July, after a long run of hot weather, I found it as high as 57°, when the air was at 84°. At the same time, I examined some wells in the neighbourhood, which were sunk 25 feet, and I constantly found their temperature 52°, uninfluenced by the heat of the atmosphere.

The water of this spring, when first taken up, is perfectly transparent: if let remain undisturbed at the well, a slight pellicle appears on its surface, reflecting the prismatic colours. This pellicle, when broken, is deposited, and forms a substance resembling ochre, or a carbonated oxyd of iron, which marks the course of the spring; but this sediment is by no means copious.

When a glass of this water is first taken up, it has none of that sparkling appearance which indicates an excess of carbonic acid gas; it has no smell, and but a slight ferruginous taste; in other respects, it is, to the taste, peculiarly agreeable. When let stand for twenty-four hours, in an open vessel, it loses its transparency, and becomes a little pellucid, depositing on the bottom and sides of the glass a thin brown scale.

When the water is boiled, the same effect is produced in a shorter period. A person accustomed to the examination of mineral waters, will, from the external character and obvious qualities of this water, find little difficulty in determining to what class to arrange it. But, in order to establish its qualities with more precision, I undertook a few experiments at the spring, in the following order:

EXPERIMENT I.

Equal parts of lime-water and the water of the spring being mixed together in a well-closed bottle, a slight decomposition took place; the mixture lost its transparency; and a small quantity of carbonate of lime was deposited. This was evidently occasioned by the presence of a small quantity of carbonic acid gas.

EXPERIMENT II.

A solution of soap in alcohol, when poured into a glass of this water, remained so far undisturbed that no flocula were thrown down, but it mixed uniformly with it into a smooth opaline solution. This shows that it cannot be classed among the hard waters, and that it contains neither acids nor earthy carbonates sufficient to curdle the soap.

EXPERIMENT III.

Paper stained with litmus, when dipped into the water, was not altered in colour. By this it was evident that it contained no uncombined acid, as this test is so delicate, that it would indicate the presence of even so weak an acid as the carbonic.

EXPERIMENT IV.

Paper stained with turmeric remained unaltered in colour, when dipped into the water, which shows that no alkaline salts were contained in it, in an uncombined state.

EXPERIMENT V.

When a few drops of prussiate of potash are poured into a glass of the water, the colour of it scarcely suffers any change; but, if let stand for some time, a very slight green shade is produced, but this never becomes blue.

EXPERIMENT VI.

Alkohol of galls has a very apparent effect on the water when first dropt into it. An amethyst colour is produced, which, on standing for some time, becomes much darker, but it never is changed to a black, such as the taste of the water would lead a person to suspect would be the case.

It is evident, therefore, from these two last experiments, that the water contains a small quantity of iron. To determine whether it was held in solution by a fixed acid, or by the carbonic acid gas, I boiled the water, but found that these re-agents, after this, produced no change in the colour of it, and also that it had lost all its chalybeate properties: which shows that, whatever minute quantity of iron it does contain is held in solution only by the carbonic acid gas.

EXPERIMENT VII.

When a few drops of nitrate of silver are poured into a glass of this water, scarcely any change is produced; a very slight white cloud appears in a few minutes, which in the course of twenty-four hours changes to an ash-colour. This shows that it contains but a very minute quantity of marine acid in any state of combination, and the colour of the precipitate also shows that the water neither contained sulphurated hydrogen gas, nor any extractive matter, as no test can be more depended on than this, and, if it had contained either of these substances, the precipitate would not only have been more copious, but of a very different colour.

EXPERIMENT VIII.

Muriate of barytes has scarcely a sensible effect on the water: which shows that it scarcely contains the most minute quantity of sulphuric acid.

EXPERIMENT IX.

Oxalate of potash produces no change whatever in the transparency of the water: this being a very delicate test of the presence of lime in any state of combination, it shows that the water is perfectly free from it.

From the above experiments it will appear, that this water is of that class which are called simple carbonated chalybeates; that is, a water in which a small quantity of iron is held in solution by the carbonic acid gas. In other respects it will also appear, that it is nearly perfectly pure, containing scarcely any other foreign ingredients. I will allow that the analysis of this water cannot be said to be complete, unless I had proceeded to evaporation; but the advantages of re-agents are such, that by them it can be perfectly ascertained, not only what are the component parts of any mineral water, but also a very accurate judgment may be formed of the quantity of any substance held in solution.

To proceed, therefore, to the troublesome process of evaporation, when we find, by previous experiments, that the water is so perfectly free from any saline or earthy impregnation, would, in this case, be scarcely necessary. Here it seems to be decidedly shown, that whatever qualities this water can be said to possess are derived from the iron with which it is impregnated. But I should not act with candour, if I did not here explicitly state, that it contains but a very minute quantity of iron. It may, it is true, appear stronger at other seasons; and, as a considerable quantity of rain had fallen in the month of July, and the spring is not protected with judgment from the effects of it, some of its chalybeate properties may have been impaired at that period.

A person of any experience in chemical investigation can easily judge, from the effects of re-agents, whether a mineral water is strong or weak. In this instance, the prussiate of potash could scarcely be said to have any effect in indicating the presence of iron, and the shade of colour produced by the alkohol of galls was not so deep as may be produced by one grain of sulphate of iron in a quart of water.

It is not my design, in this place, to enter into a description of the medical qualities of this water: such a subject becomes the province of the physician; and, from the observations which I have made on the effects of it, during a short visit to this place, I am satisfied, that many of those who drink it in such profusion would find an advantage in consulting a physician, before they proceed to the too liberal use of it, in every species complaint.

It is by no means my intention to depreciate the go qualities of this spring; slightly impregnated as it with iron, still it may have some effect in the cure certain diseases; and, when we consider that the wat is so perfectly pure in other respects, and that with may be joined the convenience of an excellent cold ba on the spot, we may easily conceive that many advantages may arise from the moderate use of it as a tonic, assisted, as it must be, by the salubrity of the air, th pleasures of society, and the beauty of the scenery.

II. *Facts and Observations concerning the supposed Effects of the Vapour of Camphor applied to the Huma Body. In a Letter from Mr.* EPHRAIM ELIOT, *t Dr.* GEORGE C. SHATTUCK, *of Boston, and by hi communicated to the* EDITOR.

DEAR SIR,

I SEND to you the following statement, i conformity to my promise, viz.:

In October, 1793, I put on a suit of clothes, wi stockings, all woollen, which had lain in a trunk fro the May preceding, in the bottom of which were several cakes of camphor. I was several hours expose to a strong north-west wind and cold air, when I wa seized with yawnings, and a great inclination to slee which I very seldom had been subject to during th day-time, in consequence of which I was necessitated to go home, where I slept several hours. I awoke under great debility, especially about the knee and elbow-joints; which continued for several days, when, upon endeavouring to start forward suddenly to give orders to a servant, my knee-joints failed, and I fell prostrate. In one moment I was able to recover myself, and felt refreshed, and much better than before. My head was not affected, and I immediately felt of my pulse, and found it perfectly in order.

I then consulted a physician, who was of opinion, that my complaint originated from obstructions of the biliary ducts, and that the gall-bladder was surcharged with bile. He prescribed an emetic, which, by his direction, I took in such a manner, as that I was puking, from time to time, during the whole day. It also acted as a cathartic. No discharge of bile was observable, and my debility increased. I took medicines for some time, such as lavender, bark, &c., &c., with no effect whatever, except that the weakness of my limbs was not constant; but, if I made any sudden exertion, was spoken to unexpectedly, felt a disposition to laugh, or was irritated, I could not support myself; but, immediately after I was down, could recover myself, and felt perfectly well.

I early suggested to my physician, the probability that the disease was the consequence of the camphor, with which my clothes had been impregnated during the summer, being applied so completely over the surface of my body. This impregnation must have been considerable, as the trunk stood in a small room, and was exposed to the immediate action of the sun nearly half of the day, and was always closed. He differed from me in opinion, advised a continuation of the medicines which I had taken, and jeeringly told me, I was inheriting my mother's nervous affections, who had been a very hysterical woman.

I quitted the use of medicines, and, after about six months from the first attack, consulted another eminent practitioner, who approved of my having left off medicines, and advised very early rising, moderate exercise on foot, and sea-bathing; also to change my feather-bed for a hard matrass. I pursued this course for a fortnight: it did not answer. I was asleep the whole day. He, therefore, recommended that I should discontinue all but the matrass, take no medicines, and trust to time for a cure. I mentioned to him the circumstance of the camphor, and that I had made the experiment of putting on clothing from the same trunk, and which had been equally exposed, which always produced an exaçerbation of the symptoms. He would not, however, admit the fact, but offered no substitute as the cause of the affection.

Time has wrought a great change. I have never fallen down, since about a year after the affection came on, excepting once, during the last summer, which may be owing, in some measure, to getting into a habit of seeking immediate support, when exposed to any of the causes above-mentioned, for I have ever felt the same sensations as when I fell. As the violence of the symptoms has abated, there has come on a habitual lethargy, whenever I sit down; a palsy of the muscles of the tongue, jaws, and neck, whenever I endeavour to express myself with earnestness, when I begin to address myself to any one, especially in the street, on being contradicted, or spoken harshly to, and while laughing; also of my arms, at a first attempt to strike at any object, when not irritated, as well as when I am. The effect is momentary, and always succeeded by an immediate restoration of energy; sometimes so sudden as to resemble the electric shock.

To look back for a number of years, I can perceive a great mitigation in the force of the attacks, but do not expect ever to be entirely rid of them. The affection of my tongue is greatly lessened within six or eight months, during which I have taken into my mouth, every evening, a piece of tobacco, which practice I was recommended to, in order to cure an obstinate rheumatism in my jaws, which it has effectually relieved, although its effects have been to induce the same debility of my limbs, while chewing it, which a beginner always experiences upon the first use of that article.

I was thirty years old when first affected; have not had a fit of sickness in my life, except small-pox and measles; have ever had a good appetite, but have lived temperately. Vegetables have never suited my stomach, so that I have lived chiefly upon animal food and fermented bread; meat I have eaten but once a day. I seldom indulge in suppers. I usually take coffee twice a day. Every function of the body has been duly performed; every secretion regular. Excepting for a short time after the first shock, I have never suffered any debility, except at the moment; my strength of body has been unimpaired; my mind never affected. I always enjoy a great flow of spirits, talk a great deal, laugh much, never anticipate evil; so that I cannot conceive that any part of my mother's infirmity has descended upon me.

It may be asked, whether persons who are constantly exposed to the vapour of camphor, such as the refiners, have ever experienced similar affections? Upon diligent inquiry, I cannot learn that it is the case. The only instances I have heard of, are Dr. Alexander, of Edinburgh, after taking two scruples by way of experiment: but the effect was not lasting; and a dog belonging to one of my friends, who was engaged in the refinement of camphor, in this place, and who was constantly in the elaboratory*. This animal, when called suddenly, or when his master entered, and he arose to meet him, lost the use of his limbs for a moment, and had other signs of debility, so as, I think, to resemble my own grievance pretty exactly. How nearly we are alike in other things, I cannot guess.

EPHRAIM ELIOT.

Dr. George C. Shattuck.

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* The gentleman who owned the dog has just informed me, that while he was engaged in the refining of camphor, he was constantly debilitated, and had a tremulous motion in his hands and arms, and felt, especially in the morning, as though he had been intoxicated.

III. *An Enquiry into the Chemical Character and Properties of that Species of Coal lately discovered at Rhode-Island: together with Observations on the useful Application of it to the Arts and Manufactures of the Eastern States.*

THE subject of the following pages is so interesting to the inhabitants of this country, that little apology is requisite for intruding it on the public. Providence has so bountifully distributed its favours over the continent of America, that few articles are required from other countries, which could not be obtained here by proper industry and research.

While the population of America was but limited, and while the forests afforded a sufficient supply of so useful and necessary an article as fuel, for the purposes of common life, no exertion was made to discover other substitutes; but, as the soil becomes cultivated, and as arts and manufactures increase, a necessity arises for seeking a supply of fuel from other sources than the woods of the country.

It is unnecessary to dwell on the advantages which must result to a country so eminently flourishing as America, from the discovery of coal mines: few who are acquainted with the rapid increase of the arts and manufactures in England, but must attribute much of their success to the benefit which they derive from their collieries. In this respect, I hope to make it appear, that England has no great superiority over this country; and those who wish well to the manufactures of America, can in no higher degree promote its best interests, than by encouraging researches, which so obviously tend to their prosperity.

The inhabitants of the Eastern States, and of Boston in particular, are much indebted to the genius and perseverance of one of their own countrymen, for the discovery of a coal mine, at Rhode-Island, so eligibly situated, in every respect, that a constant and regular supply can be obtained, at all times, without difficulty. My object at present is, to describe its geological situation, to give an accurate analysis of the coal which has been discovered, and to explain some of its most obvious qualities; and I am more particularly induced to this attempt, from observing that much ignorance prevails on the subject, and that many of its properties are either unknown, or misrepresented.

In this description, I shall confine myself entirely to that part of the island where the coal mine is at present situated, and where the indications of coal were so strongly marked, that it is rather surprizing it should have so long escaped general observation.

The fossils which appear on the surface, in the neighbourhood of the coal-mine, are argillaceous sand-stone, abundance of schistus, or shale, and white quartz, in large detached masses. When the ground is penetrated a few feet, the appearances are such, as to leave no doubt that the strata consist of what is called the true independent coal formation. Shale, and argillaceous sand-stone, abounding with vegetable impressions, present themselves first, and, immediately under the sand-stone, coal is discovered; in some places, even within six feet of the surface.

The position of the bed is here, as is generally the case in the independent coal formation, not horizontal or vertical, but forming an angle of about seventy-five, and the veins of coal appear to be separated from each other, by various coloured sand-stones, which interpose between the seams. Though all these substances belong to what is called the transition rocks, yet fine specimens of indurated talc, and green asbestus, in capillary crystals, are also discovered, interspersed through the shale, and immediately covering the coal; substances which it is difficult to account for, as they have been generally supposed peculiar to primative rocks.

The veins of coal run nearly in the direction of east and west, and the stratum which is worked at present appears to be about fourteen feet wide; so little change has as yet taken place in the course of the vein, that there is every appearance of its improving, as they proceed farther from the surface. With only fifteen workmen, they can raise, at present, from ten to twelve chaldron of coal per day, besides keeping the mine free from water, from which they suffer little inconvenience.

The character of Rhode-Island coal is as follows:

Its colour is black, or greyish-black, with a metallic lustre; it soils the fingers; its fracture is slaty, but its cross fracture is conchoidal, and the sides of its natural divisions are sometimes covered with a ferruginous earth. It burns slowly, producing an intense heat, without smoke, and with a very light lambent flame; but emits no sulphureous or bituminous vapour, and, when perfectly burnt, leaves a very small quantity of grey ashes. The unconsumed particles of it retain their original colour and lustre.

Specific gravity, from 1,450, to 1,750.

From the above description, little doubt can remain of the true character of this coal; but, in order to ascertain, with precision, the quantity of ingredients which it contained, I examined it according to the rules so ably laid down by Kirwan, and, as my object was principally to determine the proportion of carbon which it contained, as the substance upon which all its good qualities depend, I repeatedly deflagrated it with certain proportions of nitre, and uniformly found, when the experiment was made with proper attention, that 100 parts of coal contained from 90 to 94 of carbon; and in order to compare it, in this respect, with the charcoal in common use here, I found that it required more charcoal to saturate a given proportion of nitre, than it did of Rhode-Island coal. These experiments were also confirmed, by submitting 100 grains of the coal to an intense heat in a crucible, which, after five hours, were reduced to six grains of ashes; those ashes, which consisted, perhaps, of an oxyd of iron and an earth, I had not leisure to examine; nor was it of much consequence in the main object which I had in view, which was, to ascertain the qualities of the coal, as an article of fuel.

The following table of the relative proportion of carbon, which it bears to some other mineral coals, may not be unacceptable.

100 parts of	Carbon.	Bitumen.	Ashes.	Sp. Grav.
Swansea,	74	22	4	1,357
Whitehaven,	57	41	2	1,257
Newcastle,	58	40	2	1,71
Rhode-Island,	94	—	6	1,750
Kilkenny	97	—	3	1,526
Anthracite of Haüy,	64	—	36	1, 300

Thus it appears that this coal is nearly a pure natural carbon, or charcoal, resembling, in many of its properties, the anthracite of Haüy, and approaching, as nearly as possible, to the description of Kilkenny coal, but superior to the former, as containing vastly more carbon, and much to be preferred to the latter, as it contains neither pyrites nor sulphur, substances which render that coal peculiarly disagreeable for domestic purposes.

Though coal is so profusely distributed in different parts of the earth, yet there is no substance which differs more in its nature and qualities; a knowledge, therefore, of the ingredients which each species contains, is necessary, in order to apply it to the purposes for which it is best adapted. In such a country as this, where the inhabitants are so long accustomed to the use of wood for fuel, it is not surprizing that much ignorance should prevail on this subject, and that prejudice in favour of what they have been accustomed to, should operate strongly against the introduction of a more economical, and, in many respects, a more convenient substitute. To point out, therefore, in this place, the distinctions between the different species of coals, the various uses for which each of them are designed, and the particular purposes to which Rhode-Island coal may be applied with advantage, will not, I hope, be generally unacceptable.

The two points which are principally to be considered, with respect to pit coal, are, first, the intensity of the heat it emits, and, secondly, the duration of its combustion. Coals, which abound in bitumen, maltha, or petrolium, such as Whitehaven, Newcastle, and some of the Virginia coal, burn quickly, and briskly, with considerable flame and smoke. They may generally be distinguished by their low specific gravity, and, when bitumen or maltha prevails, a sort of semi-fusion occurs, which causes them to cake and swell, producing a cohesion on their surface; this interrupts a free circulation of the air, and renders it necessary that the substance should be broken, in order to keep up the combustion.

Common bituminous coal is certainly what is generally used in England. It usually contains from 30 to 40 per cent. of naptha or bitumen; but, though the presence of these volatile substances does not injure the qualities of the coal for domestic life, yet they render it unfit for use, when in its natural state, for many purposes where sulphureous or bituminous vapour would be injurious, and where its tendency to caking or cohering would interrupt the current of air, and create great irregularity in the temperature of the fire.

In order, therefore, to deprive it of these volatile ingredients, it is first charred, and, by this means, converted into coak, a substance resembling charcoal in many of its properties, and in every respect nearly similar to Rhode-Island coal. In this state, coak gives a very intense and durable heat, without flame, and is in general use for blast or wind furnaces; but it is much less pure than charcoal; it requires a greater draft of air, and is more apt to vitrify; though, in one respect, this, as well as Rhode-Island coal, is to be preferred, as it bears the blast better, and, when urged by a strong blast is not so easily blown away, nor does it consume so rapidly.

I have thus given a short view of the different species of coals. It is the business of the artist or the manufacturer, to inform himself of their qualities, before he can adapt them to their different uses. For all general useful purposes, it will appear, that coals which contain the most carbon, and the least sulphur or bitumen, which burn slowly, and produce an intense heat, leaving but a small residuum, are the most valuable and economical. From the above description and analysis of Rhode-Island coal, it will be seen, that it comes nearer to the properties of pure carbon or charcoal, than most others, and of course that, for most purposes in which charcoal is used, it is equally applicable, and, for many, it is greatly superior. I shall now endeavour to point out, concisely, and without prejudice or partiality, the various purposes to which Rhode-Island coal may be applied, as well as those to which it appears to be inapplicable, concluding with some observations on the most eligible method of using it.

The manufacture of iron has become so general and extensive over the continent of America, that it has, perhaps, more than any other circumstance, contributed to raise the price of fuel; and, should it continue to increase, the woods of the country cannot long afford a sufficient supply, in situations where such works can be carried on with the greatest advantage. Many of the most valuable mines must, therefore, be neglected; in the neighbourhood of Rhode-Island, in particular, this has already been the case; and, though abounding in iron ore, the scarcity of fuel on the spot has discouraged the manufacture of it.

It therefore requires but little argument to show the advantage that may be taken of this discovery. The Rhode-Island coal is peculiarly calculated for the smelting of iron ore; it bears the blast remarkably well, and, having no tendency to vitrify in the furnace, besides producing an intense heat, it may be applied with more economical views to this purpose, than charcoal; and, as the arts progress in this country, and iron, from its crude state, is manufactured into steel, this coal may be used to advantage, as it seems to possess the peculiar qualities necessary for the manufacture of this article. Steel being nothing more than bar iron, impregnated with a large proportion of carbon, either by fusion or cementation, it naturally follows that this coal, which consists principally of carbon, is as well calculated as possible, for the conversion of crude iron into so useful an article.

For the burning of lime, Rhode-Island coal will also be found a useful substitute for wood. The steady and uniform heat which it gives, renders it superior to wood for this purpose, as, when properly applied, all parts of the kiln will receive equal degrees of heat, and the lime will, of course, be burnt equally, without subjecting some parts of it to vitrification, while others are not affected by the heat, which is often the case in the general method of using wood for the purpose.

In all those processes which require a slow and uniform degree of temperature, such as evaporation, this species of coal is to be preferred, and I cannot, at present, point out one to which it is more applicable, than the manufacture of salt, an article of the first necessity, and to which America will, at some future period, find it necessary to pay more attention.

For the supply of the steam engine, and, in general, for every species of furnace but the reverbatory, this coal is well qualified, provided the grates are so constructed as to give a sufficient draft of air, without which it cannot be properly ignited. This, however, with the knowledge which we possess here of the principles of combustion, is a matter of little difficulty; and the circumstance of its never caking, or adhering in cohesive masses, as well as its affording so little ashes to choak the grates, renders it extremely convenient and economical: when once it is perfectly ignited, the fire is more durable than any other coal, and it requires less attention.

With these qualities, it is obvious that it is well calculated for breweries and distilleries; for the purpose of drying and preparing malt, no other species of coal will answer so well, as almost all others contain so much sulphur, or other volatile substances, that they cannot be used without destroying its flavour. This fact is so well understood, that the maltsters, even of America, have hitherto found it necessary to import Kilkenny coal, at a prodigious expence, for no other purpose but the use of the malt kiln.

The smith will find considerable saving when he becomes accustomed to the use of Rhode-Island coal. I am perfectly aware that it is not calculated for every purpose of the forge, and that, as it cannot be brought to cake or adhere, it will not answer on those occasions, where what is called by the smith a hollow fire is required; but still, for small work, and all the common purposes of the forge, it will be found sufficiently well adapted, and it has already been used with success, by many of the smiths in the neighbourhood. I cannot, at the same time, omit stating, that the brasier, the bell-founder, and those who are engaged in the casting of metals, will perceive the great superiority which this coal has over others. The intense and durable heat which it affords, renders it an article peculiarly valuable to artists of this description.

For the burning of bricks, and the manufacture of earthen-ware, and all sorts of pottery, such coal as this is particularly convenient. The total absence of all smoke or vapour renders it an article of consequence, in particular for the finer kind of ware.

But the same circumstances that make it more eligible for such manufactures, render it unfit for the reverbatory furnace, which is used in refining a variety of metals, as well as for other purposes. No fuel being adapted for such furnaces but those which produce considerable flame and smoke, such as the Virginia coal, or wood, as the principles upon which these furnaces are erected requires, that the flame only should traverse the surface of the metal, without any part of the fuel being in contact with it.

Having no doubt, myself, of the benefit which this country may derive from the more general use of an article so well adapted to the purposes which I have hinted at, I can, without hesitation, recommend it to the serious attention of artists and manufacturers, particularly to those who are situated in the neighbourhood of large cities, where wood is gradually becoming an article of considerable expence; and I cannot conclude this part of the subject, without expressing my most decided conviction, that those who will give this coal a fair trial, for culinary purposes, and domestic use, will be forced to acknowledge that it has many advantages.

I am perfectly aware, that such a proposal will meet with many objections. The prejudice arising from long and early habits, it takes some time to remove. So deeply rooted even are these, that I have heard it doubted by many, whether it was possible to make such a fire with coal, as would answer the purpose of cooking. Such prejudices are not confined to any country; the Englishman has the same doubts with respect to the qualities of wood; but, as these doubts arise from perfect ignorance of the true mode of using either of these articles, so are they removed, when each party obtains a more correct knowledge of what the other has discovered by experience.

Those, who are at length persuaded that this, or any coal, can be made to burn in common grates, will next inquire, what are its advantages over wood, before they resign an article to which they are accustomed, and with which they are perfectly satisfied; to this I shall concisely reply, as follows, and upon this answer I rest its merits.

First, such coal as this, when properly ignited, gives a more steady, intense, and durable heat.

Secondly, it is more economical, produces no disagreeable effluvia, and requires none of that attention to the frequent renewal of the fire, which is so necessary in the use of wood; and,

Thirdly, from its emitting no sparks, and from the manner in which it burns, producing neither flame or smoke, many of those accidents arising from fire, to which chimnies, stores, and dwelling-houses, are liable, from the general use of wood in large cities, would, by this means, be avoided.

I shall add but one circumstance more, which should, perhaps, have some weight in this country: though the fact may be received with hesitation by the generality of readers, yet it has been asserted, by medical men and philosophers, that the use of this article for fuel in England, has contributed to check that tendency to contagious diseases, which was at one time so prevalent in their large cities; and Dr. Mitchill, a celebrated philopher and senator of America, has endeavoured to explain it, on principles connected with established theories in chemistry.

It now only remains for me to make a few observations on the best method of using this coal; and I must confess, that I have heard so many difficulties started on this subject, which have no grounds whatever, that it is with some hesitation I attempt to remove them.

Well-informed and enlightened men will easily understand, that such coal as this, when properly ignited, must possess all the qualities of carbon. To such persons I cannot always appeal, and as the difficulty of igniting this substance is much greater than that of charcoal, many are disposed to doubt that it has any advantage; all, however, that is required, is, that the furnace or grate should have a strong draft, and that a little more patience is bestowed in kindling the fire, than is usually afforded by those who are accustomed to the burning of wood. The coal should be broke into small pieces, and a proportion of charcoal placed under it; when this is set fire to, the draft of the flue should be increased by proper management of the door or register of the furnace, or by blowers applied to the chimney. In a short time the whole is ignited; it never requires stirring, and no further trouble is necessary, but to keep the lower bars of the grate free from ashes, or any substance that would interrupt the free circulation of air. A fire, made in this manner, will continue to produce considerable heat for six or eight hours, without a renewal of fuel, and with only an occasional attention to keep up the draft of the flue.

I have thus been led into a more detailed view of this subject than I originally intended. Conscious that it affords a field for a much abler pen, I should, perhaps, stop here, but my excuse must be found in an anxiety to direct the attention to the encouragement of those manufactures, for which the present state of this country is peculiarly calculated. I should pay but an ill compliment, indeed, to the American character, were I not freely to acknowledge, that for talents and genius there can be none superior. The same spirit of enterprize, which has led them to the successful pursuit of commerce, will naturally induce them, at a proper season, to turn their attention to those arts and manufactures, which are best suited to the skill of the inhabitants, and are most intimately connected with the necessities of the country.

It will readily be allowed, that the different branches of manufacture, which are pointed out in these pages, are objects of the first consequence. The materials are obtained in abundance, and no greater proportion of labour is required, than, in the present state of population, can be spared from other pursuits; they have also this advantage, that they have already been tried, and succeeded.

Premature attempts to divert the channels of commerce, as well as to excite a rivalship in manufactures, however plausible they may appear in the reasoning of a philosopher, experience has shown to be erroneous in theory, and dangerous in practice.

That species of industry, which has already succeeded, which has contributed to the wealth and prosperity of the country, which encourages a spirit of literature, and promotes the diffusion of knowledge, should not be rashly abandoned, for speculations, founded on false views of the real interest of the nation.

IV. *An Account of a Case of complicated Fracture of the Trochanters, in which they were completely broken from the Os Femoris. In a Letter from* WILLIAM P. C. BARTON, *M. D., Resident Physician, and Surgeon, of the Pennsylvania Hospital, to the* EDITOR.

DEAR SIR,

BELIEVING that any case of fracture of the upper end of the femur, where dissection, after death, may have thrown light on this important subject, cannot prove uninteresting to surgeons, I have drawn up, for your *Journal*, an account of one, which undoubtedly merits their attention. From the surprizing extent of the fracture, compared with the nature of the accident, and the subsequent consequences and termination of it, it is not a little instructive.

Daniel Malony, a seaman, aged fifty-eight years, of an infirm constitution, and intemperate habits in drinking, had the misfortune, while walking, to break his thigh-bone, by a fall on the pavement covered with sleet. For the reduction of this fracture, he was brought to the Pennsylvania Hospital, on the morning of the 3d of February, an hour and a quarter after the accident.

Upon examination of the limb, by Dr. Hartshorne and myself, it was found to be two inches and a half shorter than the other; the knee and point of the toes were turned inwards, and the trochanter appeared to be much higher than on the sound side. The knee and foot were more easily turned from one side to the other, that is, outwards and inwards, than in a sound state of the bone could have been effected. Considerable tumefaction had already taken place about the glutæi muscles, and the whole of the upper part of the thigh, in the neighbourhood of the fracture, was much swollen. No crepitus of the fractured parts could, therefore, be felt or heard; but, from all the other symptoms, a prognòsis of a broken femur was formed without hesitation, and the precise point of fracture was judged to be in its neck.

The extension and counter-extension being made, and the thigh covered with Scultet's bandage, Dr. Hartshorne's apparatus was applied, an anodyne administered at bed-time, and the patient appeared to be as free from pain as could be expected. On the afternoon of the second day, the bandage round the ankle, for maintaining the permanent extension, was removed, and Dr. Physick's extending gater*, which was not at hand when the fracture was first reduced, was applied in its stead. The extension was maintained by means of a tourniquet, the strap of which was passed through the bands of the gater and the cross piece of board which fastens the lower ends of the splints together. By means of this contrivance, the extension could readily be increased, by degrees, and kept permanent. On the third day, every thing appeared to be doing very well; but, on the morning of the fourth, the patient was found standing on his sound leg, and supporting himself by the bed-post, having removed, in delirium, which came on in the night, the splints and dressings entirely from his thigh. The muscles, by contracting, had again shortened the limb as much as before the first reduction of the fracture. The dressings were now re-applied, and, as the patient had been accustomed to the stimulus of spirits, and was very weak, the tincture of columbo and brandy-toddy were administered to him, with three grains of opium, at night. On the seventh day, a copious diarrhœa came on. In consequence of this, and the excoriation of the buttocks, which was now considerable, it became necessary to apply clean dressings daily; and, in his delirium, which continued, the man kept his broken limb in constant motion. On the tenth day, his diarrhœa, which had been checked, came on more copiously than before, and, resisting every attempt to restrain it, continued till the twentieth. Mortification now commenced in several places in the buttocks, to which a flaxseed poultice

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* This gater, which is a late improvement of Dr. Physick's, in the apparatus for the cure of fractured thighs, cannot be too highly commended. It consists of a piece of very thick and firm buckskin leather, cut to fit the leg, in the form of the soldier's gater, except that it is laced before. It extends nine or ten inches up the leg, and completely covers the ankle and instep, having the inferior edges to come beyond the hollow of the foot. These lower parts have a broad and firm strap of the same leather passed twice or thrice through them, by means of which the extension is made. This extending gater has the two-fold advantage of affording infinitely more surface for making the extension, and of preventing that extensive and troublesome excoriation, which, in spite of every atten-

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tion, so frequently takes place on the instep and heel, from the extending bandage of Dessault.

was applied. On the twenty-first day, the diarrhœa, which had perceptibly wasted away his strength, became still more violent; he continued delirious, and, on the 25th of February, being the twenty-second day since the accident, he died.

After death, the diseased limb was examined by Dr. Physick. Upon an incision being made down to the bone, a large quantity of offensive pus was discharged from the neighbourhood of the fracture. The os femoris and its fractured parts were discovered to be in apposition, and naturally situated. The bone was then cut out, and, upon further examination, the trochanter minor was found to be entirely broken off from the body of the bone. The trochanter major was divided by a longitudinal fracture, and completely severed from its remaining half; the internal fragment, or that portion of it which was adjacent to the body of the femur, was divided by a fracture running obliquely downwards and inwards through the os femoris. The broken fragments were entirely dead, as were also the fractured surfaces of the body of the bone; and on neither was there the least appearance of an incipient bony union, not so much as a single granulation being perceptible. The bone and broken fragments, in fact, together with the surrounding soft parts, were in a highly diseased state, the suppuration being very considerable. I found the femoral artery ossified in both thighs, as high up as the groin, and the radial and ulnar arteries as high as half way between the bend of the elbow and shoulder, in both arms. The carotids, however, were natural, and, for reasons which it is unnecessary to specify, no further examination of the arteries was made. The ends of the lower ribs and their cartilages, were, on both sides, considerably enlarged, and unnaturally projecting. There was a large œdematous swelling on the depending part of each side of the neck, and on the arms large steatomatous tumours. All these circumstances I have thus minutely detailed, because they manifestly indicated the existence of an extremely depraved state of the patient's system, previous to death.

Thus have I given you a circumstantial history of this interesting case, which has already become more prolix than I intended, so that I shall offer but few comments on it.

From the anatomical structure of the parts surrounding the upper end and neck of the os femoris, it is not surprizing that fractures of these parts in adults are so difficultly ascertained, and that the precise point of dissolution should almost always be ambiguous. In oblique fractures, particularly of the head and neck of the femur, the tendency of the large muscles in which it is implanted to take on a powerful and rigid contraction, and the facility with which the exertion of coughing, sneezing, and any alteration in the position of the body, communicate motion to the thigh, are circumstances which render it extremely difficult to retain them in their proper state of reduction. Hence surgeons more frequently find themselves disappointed in effecting a cure of these fractures, without deformity, than in those of any other of the bones of the extremities. Indeed, Mr. John Bell unequivocally asserts, that no ingenuity can invent an apparatus, or machinery, which will so completely and permanently counteract the contracting action of the muscles in these oblique fractures, as effectually to restore the limb to its perfectly natural length and appearance. He considers all inventions and contrivances, with a view to this effect, as absurd and inefficacious; and unhesitatingly avers, that they are nothing but instruments of cruelty and torture. Whatever may be the correctness of Mr. Bell's opinion on this subject, and however good his reasons for it, other eminent surgeons differ widely from him on this point. In the case which I have just detailed, the efficacy of Dr. Hartshorne's apparatus was manifested, by the natural situation of the bone and fractured parts, when first brought into view.

What was the probable cause of the unfavourable termination of this complicated fracture? From the partial examination of the arterial system that was made, we may naturally conclude, that a more universal ossification of the arteries existed, probably of those in the vicinity of the heart. The languid circulation that must necessarily have been the consequence even of the partial ossification of the arteries, that dissection discovered to have existed, will readily account for the inability of the system to produce the re-union of the fractured bone. Perhaps, too, the continued motion of the limb, and, of consequence, of the fractured parts, tended to retard or completely suppress any efforts of nature to reproduce the bony matter. It seems probable, however, that the constitutional degeneracy in this man's system was so great, that the exertions of nature to repair the injury the bone had received were too feeble to have effected any formation of bony substance, had even the affected limb never been moved from its position after the first replacement of the fractured parts. On this point, however, speculative suggestions are all that can be made; but the case itself, so far as fact and dissection go, is an interesting and an instructive one; since, if we argue from it by analogy, a breach of continuity in the bones of persons of enfeebled and depraved constitutions, similar to the one which existed so extensively in this case, may justly be considered as a certain source of deformity and disease, or, perhaps, of death itself.

I am, dear sir,
Your affectionate nephew,
WILLIAM P. C. BARTON.

Pennsylvania Hospital, March 1st, 1809.

V. *Facts and Observations relative to the Disease of Cynanche Trachealis, or Croup. In a Letter to the* EDITOR, *from Dr.* ELISHA C. DICK, *of Alexandria, Virginia.*

Alexandria, October 7, 1808.

DEAR SIR,

HAVING no satisfactory apology to offer for the unreasonable length of time your favour of the 9th of April has remained unanswered, I have only to presume on your indulgence, and make the best reparation in my power, by avoiding any further delay.

Query 1. Is the disease [Angina Membranosa] more common in your part of Virginia than formerly?

With the exceptions of 1799 and the two succeeding years, it has, to the best of my recollection, undergone but little variation, with regard to the degree of its prevalence, for the last twenty-five years.

Query 2. Was it common when the oldest physician settled in and about Alexandria?

I have reason to believe it was. I had frequent conferences with Dr. William Brown, who had been many years a practitioner in this part of the world, when I commenced the practice of medicine; and from him I was led to consider it as a disease well known, for the defiance which it too often bade to the most approved rules of practice.

Query 3. In what situations has it most commonly prevailed, in the dry or the wetter soils?

I am not able to speak decisively with regard to this enquiry, having never permitted myself to engage extensively in country practice; I am, however, disposed to believe, from such information as I possess, that neither the nature of the soil, its lowness or elevation, have much influence in the production of the disease.

Query 4. Answered by the foregoing.

Query 5. At what season has it prevailed most?

It has usually made its first appearance in the last of autumn, or beginning of winter. There is a variety of the disease, of which I shall have occasion to speak hereafter, that I have seen at all seasons, but which is seldom attended with danger. It is most prevalent, I think, between the first of December and last of January, but continues to occur, with abated frequency, till the return of warm weather.

Query 6. What appear to be the most common causes of the disease?

The sensible qualities of the air have considerable influence in producing it. Sharp keen weather, especially with sleet or snow, have often multiplied cases of it, and it is evident that the children of certain families have a peculiar liability to the disease; but, as a recurrence of the same sort of weather, at the same seasons, in other years, is often unattended with a like recurrence of the disease, it follows that other agencies must be concerned in its production. Whether these are to be sought after in the predisposing tendency of preceding seasons, or among the occult properties of the existing state of the atmostphere, are probably enquiries of considerable intricacy.

Query 7. Between what ages has it generally shown itself?

It has been generally confined to children, and particularly to those within the first three years of infancy; but in 1799, when the disease was epidemical in this place and the adjacent country, it extended, in numerous cases, to children of eight, ten, and twelve years old, and, in half a dozen instances at least, to adults of different ages.

Query 8. Answered.

Query 9. Among children, is one sex more liable to the disease than the other?

To this point I cannot speak very positively; but, as my general recollection enables me to decide, the majority of cases among children has been with females, and the reverse in the instances of adults.

Queries 10, 11, 12, *and* 13. Answers to these will be embraced within the scope of the following observations.

Like other practitioners, I had too often to lament the inefficacy of the various modes of treatment recommended for the cure of the croup, while, in some instances, I had seen it disappear in consequence of the operation of an emetic. I had too frequent occasions to resume the trial of remedies of which past experience had abundantly proven the uncertainty, and the only consolation left for me was derived from an assurance that this ungovernable malady would probably never assume the sway of an epidemic.

As early as the month of November, 1799, the rapid succession and fatal result of several cases of croup represented, they had formed not the most remote idea. On representing to them that the complaint had hitherto resisted all our efforts, and that, probably, a score and a half of children had already fallen victims to it, in this place, their distress arose to a height which it would be difficult to describe. I then stated that I had recently formed a resolution to try the effects of blood-letting, carried to an extent that would doubtless appear to them awful; but that it was an experiment on which was founded my only remaining hope of subduing the inveteracy of the disease. Aided by the assurances and explanations of an intelligent French gentleman, and having brought the wretched parents to a state bordering on utter despair, I obtained their unqualified consent to manage the case in the manner I thought most advisable.

The subject was about five years old, and of an interesting and healthful appearance. I caused it to be held erect in the arms of an attendant, and made a free opening of a vein in the arm. The quantity of blood found necessary to produce the intended effect considerably exceeded that which I had anticipated, and this circumstance added not a little to the distress and apprehensions of the parents. Their pitiable countenances and impressive attitudes denoted a fear that the experiment was only calculated to hasten the fatal catastrophe. The face became pale and the pulse feeble, yet the difficulty of breathing remained unaltered. In a short time after this, however, the head fell upon one of the shoulders, the pulse was imperceptible, and the stridulous breathing was no longer to be heard. I will not attempt to describe the effect which this awful crisis produced upon the parents, who remained agonized spectators of the scene. I hastily laid the child on its bed, and bound up its arm. In a few seconds it was perceived to respire with entire ease, and slept with perfect composure.

Having remained, perhaps, an hour, without discovering any returning symptoms of the disease, I left it, after directing a dose of calomel to be given when it should awake. Some hours afterwards, and before the return of day, I was again summoned to the same place. I obeyed with a heavy heart, supposing that my poor little patient had relapsed. In this, however, I was most agreeably disappointed. I found a younger child of the same family labouring under the same disease. On this occasion, I had no preliminary points to settle; bandage, compress, and bason, were already prepared, and I proceeded promptly to the application of my new remedy, with the same happy success as in the first instance.

On the following day, I had the great gratification to find each of my little patients in fine spirits, and breathing with perfect freedom. The cough, when it recurred, which was seldom, still retained something of the sound which is characteristic, but it gradually disappeared in the course of a day or two, and neither of the children had any return of the disease during their residence in this place.

I now thought myself in possession of a remedy that would be effectual in the removal of a disease, which had hitherto been most afflicting to the community, and had so often baffled the best exertions of medicine. I met every succeeding case with increased confidence, and the uniform success of the remedy soon rendered it popular. In some instances I was requested to take immediate and exclusive charge of cases, which occurred in families where I had not usually attended, and, as far as my information extended, the practice was soon adopted by every other practitioner in the place. The whole number of cases, successfully treated, that came exclusively that winter under my own notice, exceeded thirty; and I am able to assure you, with truth, that from that time to the present, I have not lost a single patient in the croup, where my assistance was required in season. It has sometimes happened with infants, that no vein of sufficient magnitude could be discovered in either arm; and, in these instances, I have opened the external jugular, which, I believe, can always be accomplished without difficulty.

There is a stage of the disease, which I shall endeavour to establish before I conclude this letter, in which it would seem that deliquium cannot be produced by blood-letting; and, without that effect, the remedy is, unquestionably, of no avail.

That species of the croup which I consider as the chief subject of the present enquiry, and more especially as it prevailed in 1799, was, in most instances, preceded by that peculiar and distinguishing cough, which is so well known as to render it unnecessary, in this place, to attempt a description of it. When this cough was discovered during any part of the forenoon, a few hours generally produced a slight sensation of pain and soreness to the touch, at the anterior part of the larynx; and in the early part of the ensuing night, the disease commonly became completely formed. In these cases, applications were usually made in the night, and the remedy was immediately resorted to. In some instances, however, the disease was suffered to progress till the morning, but still the remedy was uniformly effectual at this period.

In cases where no premonitory cough in the day preceded the paroxysm in the night, the attack was commonly less violent. In some of these, either domestic remedies were resorted to, which alleviated the symptoms, or they were permitted to progress till the morning, when they spontaneously remitted. The following night exhibited the disease in its full fórce, and, when called upon, even at this stage, I have invariably found the remedy effectual.

The cases in which the lancet has failed, were those where either the second paroxysm was suffered to progress during the night, or when the first, having undergone little or no remission in the morning, was permitted to proceed without interruption, to the beginning of the second night. Two or three trials convinced me of the inefficacy of the remedy at these stages of the disease, and, I confess, I considered the hazard of injuring the reputation of it as forbidding a further repetition of it under such circumstances. I have, however, the consolation to believe, that I have never withheld it where it would have been effectual.

It may not be amiss, in this place, to say a few words concerning the melancholy instance of General Washington. Prior to this case, three adults had been attacked by the disease in this town, and had been relieved; two others had fallen victims to it, in the neighbourhood, for want of proper assistance. The general's attack commenced in the early part of the night, but whether preceded by the symptomatic cough I am unable to say. His residence was distant ten miles from Alexandria. The night being excessively cold, and his family physician being both aged and infirm, he contented himself with losing some blood by a bleeder in the neighbourhood, and with the application of such domestic remedies as his own understanding suggested, till the following morning, when Dr. Craik, who arrived at eight or nine o'clock, again opened a vein, with a view to bring on deliquium. Whether it were practicable or not at that time, I am unable to state; but certainly the object was not effected; and a subsequent effort, made previously to my arrival (which was in the afternoon), was equally abortive. The disease was manifestly hastening to a fatal termination. I pronounced decisively that death was inevitable, unless it could be arrested by the operation of tracheotomy, to which I strenuously recommended an immediate resort, as the only expedient that could possibly preserve the life of a man, whose loss every virtuous man in the community would deplore.

At first, I had reason to flatter myself that I had obtained the concurrence of the other physicians, and was about to make preparation for carrying the measure into immediate execution, when I was rendered unhappy, by discovering that Dr. Brown had availed himself of a few minutes of my absence, to operate unfavourably on the mind of Dr. Craik, whose assent I was unable to reclaim, by either argument or entreaty. Both of these gentlemen were advanced in years, and had each acquired a considerable share of reputation in his profession; but that increased timidity, which is, perhaps, a common attendant on old age, seemed not only to have extinguished all ardour in the pursuit of additional celebrity, but also to have created a steady determination to hazard no part of that stock which had been already acquired, which they persuaded themselves, in case the experiment failed, would sustain a diminution. I know not what might have been the result, and it would be presumption to pronounce upon it; but I shall never cease to regret that the operation was not performed. In this awful and afflicting state of things, the lancet was once more resorted to, without any better reason, perhaps, than such as impel the drowning man to grasp at a straw, or something equally incapable of affording him assistance.

From all the observations I have been able to make, concerning this disease, I am disposed to believe, that the point at which bleeding ceases to be a remedy cannot be marked with any degree of precision, independent of considerations relative to the time and manner of its commencement; but I have little doubt, that an attention to the foregoing remarks, with a slight share of experience, will readily enable every judicious practitioner to decide without difficulty, in every case that may come under his notice; and, fortunately, where the croup much prevails, he will seldom be brought to the necessity of hesitating on *this* ground, for the disease is so alarming, and the cough so characteristic, that fatal delays in applications to the physician will rarely happen; so that it remains only to be ascertained how far tracheotomy would avail, where the lancet is no longer applicable.

A few additional remarks will close my letter, which has already been extended to an unreasonable length.

In two or three instances only, during the winter of the epidemic croup, a return of the disease, some hours after its removal by blood-letting, obliged me to repeat the remedy to the same extremity as at first, when it was alike operative in its immediate effect, and in no instance have I been compelled to resort to it a third time.

There is a variety of croup, to which I alluded in the former part of this letter, which readily yields to emetics, or to a moderate dose of calomel, combined with a few grains of powdered seneca-root. It is not always practicable to discriminate, from appearances, between this variety and that which is particularly the subject of the present enquiry. The former most commonly attacks in the night, while sleeping, and without premonitory cough; but, as this is sometimes the case with both varieties of the complaint, my practice has been, in doubtful cases, to commence with the usual remedies, and if, after the operation of an emetic, the distress of breathing is not manifestly relieved, I proceed, without further delay, to the use of the lancet, while it is yet in due season.

If I might be permitted to select, from nosological writers, an appropriate name for the disease in question, and by which I should mean to be understood as designating the most inveterate species of the croup, I should call it *Cynanche Laryngea.*

I have endeavoured to condense my remarks within a moderate compass, and have, therefore, as well as for other reasons, avoided speculative disquisition; for, while I am at all times willing to impart the result of my practical observations, I have never felt ambitious to enforce them in the field of controversy.

Having now, as I hope, answered to all the points of your enquiry, I have only to add, that should any thing have been omitted, which you may deem essential to communicate to your friend, I will endeavour to retrieve, in some measure, your good opinion, by replying promptly to your future communications.

Receive, dear sir, assurances of the high respect with which

I am,
Your obedient servant,
ELISHA C. DICK.

The preceding very interesting letter was drawn up by Dr. Dick, in answer to a series of queries which I had transmitted to him. A copy of the letter, together with copies of several other papers, from Dr. John Archer, and other gentlemen, on the same subject, were transmitted to an eminent physician at Bremen, who had requested me to obtain for him all the information I could, relative to the nature, cure, &c., of the disease to which they relate. It is probable, that extracts of the papers, thus transmitted, may be published; but I stipulated with my correspondent, that the *whole* of the originals should not be made public by him.

EDITOR.

VI. *On the Efficacy of Blisters, in preventing and curing Gangrene. In a Letter to the* EDITOR, *from* JOHN FLOYD, *M. D., of Virginia.*

Christiansburgh (V.), November 27th, 1808.

DEAR SIR,

I HAVE been more silent of late than I could have wished; but the labour of my practice, which is extended over a large tract of mountainous country, has taken from me that leisure I wished to have devoted to my friends; but, as I have time at present, I do not know that I could devote it to a more useful purpose than making some communications, which may be beneficial to our profession.

The communication regards the application of blisters, and their efficacy in arresting the progress of mortification. Two cases have occurred in my practice during the last summer, and a third was given me by a respectable practitioner in this country. The first happened in this town, which is as follows:

On the night of the 20th of July last, the sheriff of this county being up late with his brother, who was then ill of a fever, thought he discovered two men at the jail, whom he suspected were about to break it, as that had often been done before.

He immediately went, with two young men, to arrest them. On his approaching the jail, he called to them to stand; one of them did so; but the other ran off, on which the sheriff fired at him. The man went about a hundred yards, and fell in the weeds and bushes, being unable to proceed farther. When they were directed to the spot by the cries of the man, they found him badly wounded in the left leg by many drop-shot. He was taken to his lodgings, and assistance sent for. I having left town to visit a patient in Wythe county, about thirty miles, the attention of another gentleman was requested while a messenger was dispatched for me. When I arrived, on the evening of the 22d, I found the patient feverish and restless, with a large hot poultice extending from above the knee, and enveloping the foot, as some shot had entered it, and were thickly scattered up as high as the origin of the gemelus muscle. I immediately discontinued the poultice, bled him largely, and gave a cathartic. I recommended an operation, but he would not submit to the knife in any way; and, indeed, I did not urge any thing but amputation, as the whole leg was much swoln, and gave to the fingers a slight sensation of air in the tela cellulosa.

Several dark-red spots appeared on the 23d, and all the symptoms were worse. Being still refractory, little was done until towards evening, when I applied a blister above the knee, as wide as my hand, and in length about four-fifths the circumference of his thigh.

On the 24th, still worse, and the patient in a most alarming state. On examination and enquiry, I found that little regard had been paid to him, as all supposed he would die; and the blister, being suffered to lie loose upon his thigh, had no effect. The leg was now completely mortified, and the dark colour of the skin extended to the superior anterior spinous process of the os ilium, and gave a much slighter sensation of air to the fingers than in the leg, which was now apparent to every one. I then renewed the blister, and applied it myself, visiting him often, and careful to keep it in place.

On the 25th he was better; the blister had drawn, and the dark colour immediately subsided upon the cuticle being cut, which discharged a very dark-brown fluid. I still permitted the blister to remain, and on the 26th the patient was still better; the mortification was completely marked, and began to separate about the origin of the gastrocnemii and plantaris. I then amputated the leg immediately above the edge of the mortified part.

He was afterwards bled according to the state of his pulse, and treated in the usual way; in a short time he was entirely recovered, and William Black (a taylor) is now working at his trade.

I have not the smallest shadow of doubt, as to the fatal termination of this case, had not the blister been applied; and I must here add, that, on the 23d, I judged it expedient to commence with that practice which is commonly pursued in cases where sphacelus is feared. But these, in my opinion, might have been given to the end of the chapter, without having the effect; and the perseverance in them was more in conformity to vulgar prejudice, than any good effect I observed in the present instance. I must confess, however, I have seen them often do good, yet I have known them frequently fail; nor can I think them entitled to the appellation of specific, which some philanthropists, in the overflowings of their goodness, have been pleased to bestow upon them.

The second case is that of J—— S——, a cooper, in Giles-county, about twenty-five miles from this. In August last, being a little drunk, and shaving at his horse, cut his leg with a drawing knife. He continued drinking, and paid no attention to it until it got in a very alarming way, with slight symptoms of mortification appearing. I ordered a blister over it; a small part soon sloughed off, and the place soon healed. He took but little medicine, I being desirous, in this case, to determine, for the satisfaction of others, what in my own mind I was so clearly convinced of.

The third case, as given me by a gentleman of good standing, is to this amount: that some months ago, I do not recollect the date, his patient, J—— E——, got drunk, and burnt his leg badly, by falling in the fire; the part mortified. He gave cinchona, opium, &c., &c., and applied a blister, which soon, as he said, arrested the progress of the mortification, and the patient did well.

I have many reasons to be attached to the blister; but, however high my present opinion of them in mortification, I am ready, at any time, to relinquish that opinion, when repeated trials are made, and it should be found unsuccessful in any. I was early attached to them as a remedy in many complaints, and from their good effect, often, when I did not expect much, has given me a kind of professional prejudice in their favour, which physicians are too apt to be governed by: but my prejudice only extends to them, as a very valuable article of Materia Medica, notwithstanding many opprobrious epithets, as " extreme unction," &c., &c. I must, however, in this place, acknowledge, that I was first induced to try this remedy, from a statement made by Dr. Physick to his class, of its success in his hands, and confirmed by a letter from Dr. Rush to him, on that subject. Added to this, I was the more sanguine of success, as I have seen much on the efficacy of blisters. Some, indeed, I did not believe, and only viewed as hypothesis, until it was confirmed by the authority of Dr. Physick. I here allude to the practice of medicine in [illegible] Indies, anterior to the publication of Dr. Li[illegible] the *Diseases of*

Hot Climates. The practice there was, then, particularly in dysenteries, to throw up emollient clysters; and, if there was much griping, pain, &c., a blister was applied to the abdomen, to prevent the mortification of the intestines, and that high degree of inflammation that precedes it. These observations, as well as I recollect, for I have not the books by me, may be found in the London or Edinburgh Medical Journal.

If then it be true, that a blister will stop the progress of mortification, which the East-Indians and physicians on the Malabar-coast supposed, and is now asserted by Dr. Physick, to which I can, from experience, bear testimony, would it not be worthy the trial in cases of high degrees of inflammation, where sphacelus was suspected, to prevent the access of that deplorable disease?

I am, Sir, with high consideration and respect,
Your sincere friend,
JOHN FLOYD.

VII. *Memorandums of the Practice of an American Empiric, as communicated to the* EDITOR, *by Dr.* REUBEN MUSSY, *of Massachusetts.*

February 21*st*, 1809.

LAST summer, a man, who called himself Dr. *******, passed through New-Hampshire and Massachusetts. His object, in commencing travelling practitioner, was, as he said, to revolutionize the practice of medicine, and in this way ameliorate the condition of humanity.

All the varieties of fever, he said, were but one disease; and this disease consisted in "*a fire at the vitals.*" The method of curing fever, he was generous enough to communicate to every body. This method was simple and easy, being nothing more than, by means of medicines, to kindle *another* fire at the vitals, superior in force to the first, and thus to *drive* or *compel* it to go out at the pores. If this plan, in any instance, should fail, the application of heat externally would *invite* the fire to the surface; so that, by the combined operation of the internal medicinal fire, and the external artificial heat, the fever would, most certainly, be obliged to quit the patient.

His Materia Medica consisted in the pulverized tops of the Lobelia (syphilitica?), the powdered root of the Marsh-rosemary, and the essences of some of the aromatic and stimulating plants, as Golden-rod, Fennel, Patridge-bush (which last was a great favourite with him), the Mints, Mustard, and Horse-radish.

When called to prescribe for a patient, he always covered him closely in bed with a great mass of clothes, and gave him a tea-spoonful of the powdered lobelia, in a table-spoonful of rum or brandy. It generally produced instant vomiting. He then gave one or more of his essences, in pretty free doses, and in conjunction with large draughts of the decoction of the rosemary. If this course did not soon produce profuse sweating, he applied heated bricks, wrapped up in wet cloths, to the feet and sides of the patient. The sweating excited in this way was continued twelve hours. If, in the course of this time, the disease was not all *driven out*, the same course was pursued, only the medicines were given in smaller doses. Many patients thus treated immediately on the attack of the first symptoms of fever, recovered. But this *febrifuge* method was not perfectly adapted to *phthisis pulmonalis*. Two consumptive patients I knew of died in his hands, before the sweating process was half completed. In no instance did he do any thing like curing phthisis, though in every case he promised long life.

By this time, I need not state that he was destitute not only of any regular acquaintance with his profession, but even of the rudiments of an English education, and that his stay in every place was short.

VIII. *Cases and Observations of the good Effects of the Geranium Maculatum of Linnæus, in Hæmorrhages. In a Letter from Dr.* JOB WILSON, *to* SAMUEL BENEZET, *M. D., of Philadelphia. Communicated to the* EDITOR *by Dr.* BENEZET.

SIR,

HAVING been informed, through the medium of my brother, that it would be highly gratifying to you, to be furnished with a detail of those cases in which I have observed the application of the Geranium maculatum to be attended with the most happy effects, I with pleasure hasten to comply with your request.

Before I enter upon the subject, however, I beg leave to remark, that this vegetable has never failed to operate as a styptic in my hands; and, from what I have seen of its efficacy, I can affirm, that, in point of utility, it is inferior to nothing but the ligature. I have always used the Geranium in epistaxis and the extirpation of tumours, with complete success.

I shall now give you a cursory and succinct account of three cases, in which I had an opportunity of fully trying its salutary virtues; and, should you think them unworthy of your notice, I hope that you will consign them to oblivion.

CASE I.

Having undergone no inconsiderable degree of fatigue, in the Alms-House and House of Employment, in the city of Philadelphia, I was attacked with a very severe pain about my rectum, which ultimately terminated in a copious discharge of blood, from the hæmorrhoidal vessels. In vain did I give my disease a "lancet-chase;" in vain did I resort to the use of laxative medicines. Finding that it proceeded not from an excessive action of the arterial system, as I had at first supposed, I resolved upon trying the effects of the galls: but having my expectation baffled in the latter, as well as in the former experiment, I determined upon using the Geranium maculatum. Accordingly, I took three drams of the dried root, and boiled them in a pint and a half of water, till three gills were boiled away. Of the remaining portion, I took a wine-glass full four times a day. Having used this for about three days, I found myself perfectly cured; and have not, since the above-mentioned period, had a return of the disease.

CASE II.

Mr. A. E. Maple, of Nottingham-Square, being greatly afflicted with hæmoptysis, I endeavoured to relieve him by bleeding and the internal use of the sugar of lead, so highly recommended by Professor Barton, in his Lectures, &c. My attempts, however, proved unavailing. I then resorted to my favourite remedy, the Geranium, and administered two drams of the pulverized leaf, in a gill and a half of boiling water, the whole of which he took as soon as it was sufficiently cool for that purpose. It checked the profusion of blood in less than three minutes; and in five minutes effected a perfect cure*.

CASE III.

Mr. J. Campbell, of the same place, on the 23d of June, 1806, divided the tibial artery, just as it passes obliquely across the tibia. It was impossible for me to persuade him to have the artery taken up, and secured by ligature. I immediately applied the pulverized leaf of the Geranium maculatum, which completely put a stop to the hæmorrhagy.

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* The sugar of lead is, certainly, one of the most quickly-operating of all medicines; in hæmorrhages especially. But I have never had occasion to observe its effects within a *shorter* period than those which are here mentioned, as proceeding from the Geranium maculatum. EDITOR.

I am, Sir,
Yours, &c.,
JOB WILSON.

Hights-Town, December 16*th*, 1808.

IX. *Facts and Speculations relative to the Diseases that are common to the Human Kind, and other Families of Animals.* *By the* EDITOR.

PROFESSOR BLUMENBACH, in his learned work, *De Generis Humani Varietate Nativa*, has given place to a section, or article, entitled "Morbi maxime memorabiles homini proprii." The professor thinks it highly probable, that there are some diseases wholly peculiar to the human kind; and these he has distributed under the following five general heads, viz.:

I. FEBRES EXANTHEMATICAE,
II. HAEMORRHAGIAE,
III. NERVORUM AFFECTIONES,
IV. CACHEXIAE,
V. MORBI LOCALES.

I shall make a few remarks on some of the principal diseases under each of these heads, or classes.

I. ERUPTIVE FEVERS.

To this head, Professor Blumenbach refers the following diseases, viz.:

1. *Small-pox,*
2. *Measles,*
3. *Scarlatina*, or *Scarlet Fever;*
4. *Miliary Fever,*
5. *Petechiæ;* and
6. *Plague.*

Is it certain that the first of these diseases is peculiar to the human race? Mr. Blumenbach himself says, that Dr. Jansen informed him, that some Apes (Simiæ) at Amsterdam, being inoculated with variolous matter, the local ulcer was induced, but not the variolous fever. But I think it highly probable, that many animals, besides man, are susceptible of the small-pox. Indeed, Goetz, a German writer, has related the history of a case of this disease occurring in a Dog. His account is curious; and, being short, I shall give the whole of it a place in this *Essay.*

"*Canis Variolis per contagium affectus.*"

"Bruta per contagium hominum infici morbis, monstrant diversa exempla. Simile quid & meo accidit cani domestico, qui cum infantibus meis variolas tunc habentibus ludens, lotium eorum etiam nonnunquam bibens, exanthematibus rubris variolosis in Abdomine et circa Penem, iisque præsertim locis, ubi pauci vel nulli aderant pili, per aliquot torquebatur dies, quiritando & ejulando dolorem inde ortum indicans; bene interim appetens, & assiduo ea lambendo ac lingendo brevi rursus curans*."

Cases a good deal similar to this are recorded by other writers. But it may be said, that the cases are not stated with sufficient precision: and I will allow, that it were to be wished, that Goetz had told us something more particular concerning the stages of the disease in his dog. The words, however, "exanthematibus rubris variolosis," are very descriptive; and it is difficult to conceive that the author, who appears, from several of his papers, to have been a man of observation, could have fallen into a mistake on the subject.

But the susceptibility of other animals to receive the variolous influence, will appear more probable from the important lights, relative to the nature of the VACCINE disease, which have opened upon us, since the publication of Mr. Blumenbach's work, in the year 1795†. That disease, it is well known, was originally transferred to the inhabitants of four quarters of the globe, from the udders of an animal belonging to the class of *mammalia*. What has been the true origin of the vaccine in the PECORA, has not yet been ascertained. Time *may* reveal the secret. But there are, certainly, some reasons to believe, that this mild and salutary disease is merely a MODIFICATION of Variola; and, if I do not greatly mistake, time *will* completely establish the IDENTITY of the poisons which induce the two affections, however different from each other they may now appear to be.

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* Acta Physico-Medica Academiæ Cæsareæ Leopoldino-Carolinæ Naturæ Curiosorum, &c., &c. Vol. ii. Observatio CLXXXIII. p. 426.

† I use the third edition of the work.

Of Measles, of Scarlatina, and of Miliaria, I have nothing particular to say. It may not, however, be amiss to observe in this place, that Cats, and other species of mammalia, are by no means exempt from some of the Catarrhal affections, which are considerably allied to measles.

Of Petechiæ, as a disease of animals, I have met with intimations, by no means obscure, in the writings of some of the older physicians on epidemics. Indeed, the existence of petechial spots, as a symptom of disease in animals, will hardly be doubted, when we consider, that such petechiæ are merely an accidental symptom of malignant fevers; and that malignant fevers of different kinds have been extremely common, in all ages and countries, among animals; especially, perhaps, among the Pecora,—and the Solipeda*.

The term *Pestis* is, I think, by far too vague for the purposes of exact medical science. It is certain, however, that the term is one of a very broad import in the writings of the ancient physicians and historians of Greece and Rome. From some of these writers we learn, that the same pestilences prevailed at the same time, or in quick succession, among the human kind, and among the domesticated animals of the fields, &c.: nay, they tell us, that the horses and cattle (oxen, goats, and sheep) have sometimes communicated the pestilence to the human kind. On this subject, the valuable work of Dionysius of Halicarnassus, in particular, is worthy of being consulted*.

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* The horse and other animals of this natural family, to which, in my work on *Zoology*, I give the name of CABALLI.

A pestilential or malignant bilious fever has, for several years, prevailed among the horses in various parts of the United-States; in Canada, &c.; and has proved very mortal to these useful animals. I propose to publish an extensive memoir on the subject of this disease, which appears to be very nearly allied to the most malignant bilious fevers, confessedly of domestic origin, in the United-States: and even nearly allied to the yellow-fever, which has so often visited the fairest and most populous cities of the Union†.

I am now to say something of Mr. Blumenbach's second general head of diseases, viz.:

II. HAEMORRHAGES.

To this head the professor refers

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* Antiq. Rom. Lib. ix.

† I do not mean by this observation to assert, or even to intimate, that these diseases are not specifically the same. On the contrary, I do believe that they *are* specifically similar.

1. *Epistaxis,*
2. *Hæmorrhoides*, and
3. *Menorrhagia.*

The first of these diseases is, indeed, put down with the mark of doubt; and I have somewhere seen it observed, that man is the only animal, to whom a bleeding at the Nose, independently of external violence, is natural. But this is not the case. Hæmorrhages from the *nose*, as well as from other parts of the body, have been observed to occur in the febrile epizootick diseases of the United-States; as I shall show, with the proper authorities, in my memoir on the fever of horses.

As to Hæmorrhoidal affections, they are, certainly, not peculiar to the human kind. The dog, with whom costiveness is a common disease, is subject to this troublesome affection of the rectum. This is a fact which cannot be less familiar to hundreds of others (especially to sportsmen) than it is to myself.

My own observations have also satisfied me, that the common North-American Opossum (my Didelphis Woapink*) is not exempted from a morbid state of hæmorrhage from the uterus. It is highly probable, that the same thing occurs in the Kanguroo†, and means exempted from this *mental* affection. I could not treat this article at length, without appearing to treat it somewhat *ludicrously*.

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* For some account of the generation, &c., of the opossum, I beg leave to refer the reader to my paper entitled "Facts, Observations, and Conjectures, relative to the Generation of the Opossum of North-America." Philadelphia: 1806.

† Macropus major of Dr. Shaw.

Satyriasis, so far from being wholly unknown, is really a pretty common disease, among animals of different families, and classes. We have striking examples of it in some of the *Simiæ*, a vast assortment of animals, many of which are closely allied to us, not merely by their external habit or appearance, but by certain circumstances of structure, and by peculiarities of function. But examples of a similar kind are afforded to us by other families of animals, as by the Birds, &c.

Neither is Nymphomania exclusively a disease of the *human* female*. The Pecora, the birds, and other families of animals, supply us with illustrations of my position. Indeed, the Gottingen professor himself has furnished us with examples of something very like this disease, as occurring in the class of birds, in his interesting *Specimen* concerning the differences between the hot-blooded Viviparous and Oviparous animals; a dissertation which I have read with much satisfaction†.

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* It will be observed, that Mr. Blumenbach speaks doubtfully both of this disease and of Satyriasis.

† See the Commentationes Societatis Regiæ Scientiarum Gottingensis, &c. Vol. ix.

In the class of Insects, there are many examples of species, in which there is a great difference in the proportion which the sexes bear to each other. In one insect, in particular, with which I am acquainted, the ratio of females to that of males is very great: perhaps nearly as fifteen to one. During the season of generation of these insects, it is amusing to observe the ardent love of the females. They not only make the *first* advances to the male, but they even quarrel and fight with each other, contending who first shall receive his embraces.—" Verum pudet fere ea enarrare," as Mr. Blumenbach has said, when treating of another subject. And I am even reminded, in this place, of the words of Linnæus,—not always consistent in his professions of modesty,—" GENITALIUM curiosior indagatio abominabilis displicet*."

In regard to *Cretinismus;* if the connection between this affection of the mind and the swelling of the thyroid-gland, known by the name of Goitre and Bronchocele, be really so intimate as many European writers have asserted, it may then with safety be conjectured, that cretinismus is a disease not entirely confined to the human kind; for the bronchocele is extremely common among some of the mammalia, in different parts of North-America. I shall, in this place, repeat what I have said on this curious subject, in a *Memoir* on Goitre, which I published several years ago.

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* Systema Naturæ. Professor Gmelin, in his edition of this great work, omits the word " abominabilis." Tom. i. p. 16.

"The Goitre of the State of New-York is not confined to the human kind. In that part of the Military Tract which is called Manlius, I was assured that both sheep and young calves are sometimes affected with large swellings of their necks. A calf, which had been weaned about three weeks, and suffered to run loose, after drinking the water of a certain stream, became greatly affected with a swelling of the neck. The animal was soon killed, so that it is not known how much farther the disease might have proceeded. About three or four miles to the east of Onondago, there is a brook, the waters of which are said to occasion great swellings of the necks of men, of women, and even of sheep. The water of this brook is, certainly, highly impregnated with lime-stone, to which the mischief is ascribed. In this country, it is customary to turn out the sheep to graze upon the Beech and Maple lands, that is, lands whose principal large vegetables or timber are the beech*, and different kinds of maple†. The sheep, being thus set at liberty, have an opportunity of going to the brook which I have mentioned, where great numbers of them, it is supposed from drinking the water, become afflicted with large swellings of their necks. These swellings have not, hitherto, been observed to be attended with much inconvenience to the sheep, and it is worthy of observation, that in the winter-season they subside, or leave them. I was informed, that neither horses nor cows have been observed to be affected with similar swellings, from this or other brooks. But Mr. James Geddis ——— has lately assured me, that both sheep and horned cattle are subject to this disease. 'It is apt,' he says, 'to be fatal to calves and lambs.' 'In Manlius,' says the same gentleman, 'I have lately seen a sheep with a very large neck. She was fatting for the butcher, as she had always lost her lambs by this disorder*."

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* Fagus ferruginea of Aiton.

† Acer saccharinum, or Sugar-Maple, &c.

Since the publication of my memoir, I have heard of cases of goitre in other animals, besides those already mentioned, in the United-States. In particular, I am assured, that a number of Goats are affected with such tumours, in the vicinity of Pittsburgh, in Pennsylvania, where the disease prevails, to a considerable degree, among the human inhabitants.

It is not a new observation, that other animals, besides the human kind, are afflicted with the disease of goitre. Mr. Coxe informs us, that in some parts of Switzerland, even the dogs are subject to "goitrous tumours," as he calls them†.

After all, these facts do not *prove*, that sheep, goats, dogs, and other mammalia, are subject to cretinism. But they certainly render it probable, that these animals are not wholly exempted from this mental affection, so far as such affection is really connected with an enlarged, or otherwise diseased state of the *glandula thyroidea**.

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* A Memoir concerning the Disease of Goitre, as it prevails in different parts of North-America. Pages 12, 13, 14.—Philadelphia: 1800. 8vo.

† Travels in Switzerland, in a Series of Letters to William Melmoth, Esq. Vol. I. p. 349.

III. CACHEXIAE.

To this class, Mr. Blumenbach refers the following diseases, viz.:

1. *Rickets*,
2. *Scrophula*,
3. The *Venereal Disease*,
4. *Pelagra*,
5. *Leprosy* with *Elephantiasis*.

The two first of these affections are put down with the mark of doubt. But it was not necessary to express any kind of doubt, whether other animals, besides man, are subject to Scrophula.

We have just seen, that various species of animals are afflicted with goitre, a disease sometimes considerably allied to scrophula. But, passing by this fact, I know, from my own observations, that dogs are subject to swellings of the lymphatic-glands, which, if not truly scrophulous, we know not how to distinguish from scrophula†. I think the Horse is subject to a similar disease; and, if I do not mistake, the ingenious Mr. John Hunter has somewhere observed, that he often found scrophulous disease in the Monkeys*, and even in the Turkeys, which he had dissected. The turkey, I well know, is very remarkably subject to disease of the liver.

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* See my Memoir, &c. Pages 49, 87, 88.

† The dog, as I shall show in another memoir, is also afflicted with Hepatitis, in certain warm climates, as those of Hindustan.

On the subject of Rickets, I shall not venture to say any thing positive. I *believe*, however, that this is a disease to which other animals, besides man, are liable; and, it may not be improper to add, that there are whole nations of men, who appear to be entirely exempt from this disease. Such, not to mention others, are many of the Indian tribes of North-America (and, no doubt, South-America also), among whom we have never been able to detect any appearances of rickets†.

Of "Venerea lues," or the Venereal disease, what shall I say? I know that some of the ablest writers have asserted, and they sometimes appeal to their *experiments*, that man alone is the victim of this disease, the offspring of "unlawful love." But many more experiments should be made (if, indeed, it be advisable to make any experiments on this subject) before it would be safe to admit the position, that to the dog and other animals, the disease of syphilis is wholly unknown.

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* It forms no part of my object to assert, that the disease of scrophula is found in Monkeys, *because* Negroes are very subject to this affection.

† It may be worth observing, in this place, that scrophulous affections are not uncommon among the North-American Indians.

Linnæus has asserted, and his industrious and learned editor, Gmelin, has repeated the observation, that the "dog is very liable to gonorrhoea:" "saepe gonorrhoea infectus*." I do believe that there is *some* foundation for this observation: and I may, perhaps, on another occasion, detail the facts and circumstances, upon which I rest my suspicion.

Pelagra, except through the medium of books, is a disease with which I am wholly unacquainted.

Lepra and Elephantiasis, for aught I know, are peculiar to the human kind. But I think that the dog, and other mammalia, are subject to certain cutaneous diseases, which it might not, on all occasions, be easy to distinguish from some leprous affections. The affinity of some cases of Scrophula and of Lepra has been acknowledged by physicians: and I have rendered it very probable, that various species of animals are subject to a true scrophula.

The mammalia are also subject to that singular affection of the *reticulum malpighianum*, which has been called "Albino," *Leucaethiopia*, &c. This disease, which has solicited much of Mr. Blumenbach's attention, is sometimes, apparently, of a leprous nature†.

V. Local Diseases.

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* Systema Naturae, &c. tom. i. Art. *Canis* familiaris.

† See my account of the case of Henry Moss, in the Philadelphia Medical and Physical Journal. Vol. II. Part ii. Art. I.

The following is the full list of diseases, which Mr. Blumenbach has referred to this section, or class, viz.:

1. *Amenorrhoea,*
2. *Cancer,*
3. *Clavus,*
4. *Hernia congenita:*
5. "*Prolapsus* variae species, ut ille *vesicæ urinariæ inversæ* cuius curatiorem notitionem debemus acumini egregii Bonn:"
6. *Herpes,*
7. *Tinea capitis.*

Amenorrhoea is, doubtless, a disease peculiar to the human kind, if it be a fact that the human female is the only animal, which is liable to the catamenial discharge. And this opinion, advanced by some of the earliest naturalists* whose writings have descended to us, is warmly supported by Mr. Blumenbach†. I must confess, however, that I do not think the observations of my ingenious friend are by any means conclusive. I will not assert, that they are merely *negative.* Naturalists and travellers of credit assure us, that various species of Mammalia, especially in the order of *Quadrumanae*, do menstruate. Nay, some of the *Glires*, or *Rodentia*‡, also, it is said, have a catamenial discharge. For these assertions I do believe there is *some* foundation.—It will, indeed, be a most extraordinary fact, if among the great number of animals which compose the class of mammalia, there is only a solitary species subject to the *fluxus menstruus*.—But the inquisitive researches of naturalists cannot fail, in time, to conduct us to more certainty relative to this wonderful function of the animal uterus.

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* Pliny, &c.

† De Generis Humani Varietate Nativa. p. 50, 51.—See, also, the author's Institutiones Physiologicæ, &c. Sect. XLII. p. 421.

‡ See Dr. Sparrman's account of the substance called "*Dassenpiss*," which he thinks, is most probably the menstrual excretion of

Cancer is put down with the mark of doubt. Nor have I any facts to prove, that man is not the only animal who is afflicted with this dreadful, and generally incurable, disease. I confess, however, that I greatly incline to the belief, that some of the mammalia, besides man, are subject to cancerous or cancer-like affections. We have seen, that scrophula, not unallied to cancer, is a disease of animals: and, besides scrophula, many of the mammalia are subject to ulcerations of a troublesome, and even dangerous kind.

Clavus is the next disease mentioned by the professor. I have nothing to say on this head:

Nor concerning Hernia congenita, which, however, is noted with the mark of doubt.

Of the Prolapsus of the inverted urinary bladder, I know nothing, from my own observation; and but lit-

the Hyrax Capensis of Gmelin (Cavia Capensis of Pallas): Cape Cavy of Mr. Pennant.—A Voyage to the Cape of Good-Hope, &c., &c. By Andrew Sparrman, M. D. Vol. I. p. 309. London: 1785. 4to.

tle from reading. It seems that it very frequently occurs in human births; but Mr. Blumenbach does not know, that it has ever been observed in the fetal animals of any other mammalia. The professor even attempts to account for its non-occurrence in the class of animals[*].

Prolapsus of various kinds are frequently met with among dogs, hogs, and other animals. In the first of these animals, the Prolapsus of the rectum is a common affection. The same animal and the hog are liable to Hernias: particularly, I think, to Umbilical Hernias.

Herpes, of different kinds, are not unknown among the mammalia[†]. Even Tinea capitis, or at least a disease extremely allied to it, afflicts the dog, and other animals. These diseases in the mammalia are often cured by the same mercurial and other medicines, which we employ for their cure in the human kind.

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[*] "Caussam, cur memorabile hoc conformationis vitium in humanis partubus toties, in aliorum vero mammalium foetibus, quantum mihi constat, nunquam observatum fuerit, in angustiore pro portione homini pubis synchondrosi, singulari fissura (quam itidem cl. Bonn accuratissime indagavit) quasi bipartita, quaerendam esse censeo.—cf. cl. Roose *diss. de nativo vesicæ urinariæ inversæ prolapsu*. Gotting. 1793. 4. c. tab. aen."—De Generis Humani, &c. p. 61, 62, in nota.

[†] Herpes, in Mr. Blumenbach's list, is marked doubtful.

"Anceps haereo (says the professor) anne et huc referam *Vermes intestinales* hominis, et binas ex *Pediculorum* genere species, praeter ipsum quantum novi in nullo alio mammali observatas*."

Perhaps, this is rather nice. Worms of various species inhabit the human alimentary canal; such as species of Taenia, Ascaris, Trichocephalus, &c. I believe that naturalists are by no means acquainted with all the species. Although I have paid much attention to the subject, I confess that I am not prepared to assert, that the *same* species of worm does, in any instance, inhabit the intestines of man and of other animals. But no one will be so bold as to assert positively, that this is not the case.

Some worms are, unquestionably, congenite with the fetal birth. Other species seem to be more evidently derived from without. In the former case, it were, I think, natural to suppose, that the species of worm is peculiar to the human kind: in the latter, it will, indeed, be remarkable, if the same worm is never found in the body of man, and in that of any other animal.

I can say nothing satisfactory concerning the two species of PEDICULI, which inhabit the human body. That they are exclusively confined to the human kind, I cannot readily believe.—Is it certain, by the way, that the Pediculus which inhabits the human head in different parts of the world, the inhabitants of which had, for ages, been separated from each other, is specifically the same? The investigation of this fact might be worthy of the attention of naturalists, who visit new countries. It might, perhaps, throw *some* light upon the important question, concerning the origin of mankind. The laws of the Mexicans show us, that head pediculi were very abundant among the poor of that singular people*. But it does not follow, that the Mexican pediculi were of the same species as those which Cortes and his associates brought with them into the countries which they visited and conquered. I cannot help thinking, that a complete history of the human Pediculi would prove quite as interesting as a history of Bugs and Fleas†.

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* Pag. 62.

Mr. Blumenbach concludes the subject which he has examined by observing, that he passes over those diseases which, although they are not peculiar to man, are nevertheless much more common among our species than among any other animals: such as

1. *Troublesome Dentition,*
2. *Mola,*
3. *Abortion,*

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* See Clavigero's History of Mexico. Vol. II.

† An English writer, by the name of Southall, published a work on *Bugs*, in the year 1730.

4. *Difficult Labour*, &c*.

I greatly mistake if many species of animals do not suffer considerably from the process of Dentition. That this is the case in *some* animals, is acknowledged by medical writers; and is well known to those who have the management of domestic quadrupeds. To this I might, with some propriety, add, what has been said by certain writers, that dentition, as a disease, is much more common among some nations than among others: and that it more frequently occurs among civilized than among savage nations. Thus, among the Indians of North-America (those, at least, with whom we are best acquainted), cases of difficult dentition are by no means common. This I would, in some measure, ascribe to the structure of the cutting teeth of the Indians, which, in general, are more sharp-pointed than those of the *Europo-Americans*.

As to the diseases of the Teeth in animals, they will claim some of my attention in a second memoir. At present, I shall content myself with observing, that many of the mammalia seem, in common with man, to suffer exquisite pain from tooth-ache: and Caries of the teeth is a frequent occurrence in the same class of animals.

Mola is a common disease in animals. Its occurrence in the Hog, is known to every butcher. I even doubt if mola be much less frequent in the mammalia than in the human kind.

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* "Taceo eos morbos qui etsi homini non proprii, tamen longe quam aliis animantibus frequentiores sunt, ut *dentitio gravis*, *mola*, *abortus*, *partus difficilis*, etc." De Generis Humani, &c. P. 62.

As to Abortion, the instances of this in the family of animals are very numerous: though not, I presume, so frequent as among the human kind. Abortions, however, are much more common among civilized than among savage nations. And it is well known to Mr. Blumenbach, that a kind of *abortus* naturally and invariably takes place in whole genera of certain orders of the mammalia. This is the case in the common Opossum of North-America; in the Kangaroes of Australasia, or New-Holland; and in other animals of the order of *Pedimanes*, as the French naturalists call them.

Cases of Difficult Birth very frequently occur in the class of animals. Nor are these cases confined to a *few* of the mammalia, in a state of *domestication*. They occur in many of the *wild* animals. They are not unfrequent in the class of Birds, especially, perhaps, when in a state of confinement. Thus the Canary-Bird (Fringilla Canaria) sometimes dies while endeavouring to part with her eggs. George Seger, one of the pupils of Thomas Bartholine, has shown, that a species of Viper (Coluber Berus?) sometimes excludes her eggs, or young, with great difficulty. In my *Anatomy and Physiology of the Rattle-Snake*, &c., I shall relate instances of a similar kind, in regard to other animals of the class and order of *Amphibia Serpentes*. Instances of difficult parturition occur even in the great class of Insects. And, indeed, I am inclined to believe, that birth, in almost all the classes of animals, is connected with more or less of pain and difficulty. We even observe *something* of this kind in the vast class of Vegetables: a fact which deserves to be kept in view in an investigation of the many Analogies which subsist between animals and vegetables.

As having some relation to the question which I have been examining, I may observe, that *extra* uterine conceptions, and monstrous births, occur in some of the classes of animals, but especially in that of the mammalia.

With these observations, I shall close my remarks on one of the most curious sections in Mr. Blumenbach's work. I must confess, however, that, in my opinion, the Professor has treated the subject with less ability than many other questions in his work.

X. *Experiments and Observations on Cutaneous Absorption. By* REUBEN D. MUSSEY, *M. D., of Massachusetts. Communicated by him to the* EDITOR.

THE analogy of structure between man and other animals, and the great number of absorbent vessels found running along the cellular substance under the skin, seem strongly to favour the doctrine of Cutaneous Absorption. For what purpose, it is natural to ask, were absorbents thrown in such profusion under the cutis vera, if some of their extremities do not open externally, and occasionally take in substances applied to them? But to produce conviction on a mind cautiously inquiring after truth, stronger evidence than is furnished by analogy is often necessary; and, on a subject so important as the present, our opinions should be fixed by experiment alone.

Doubts respecting the existence of this long-acknowledged function of the skin were raised by Mr. Seguin, of Paris, and acquired great strength from the experiments made in this city by Drs. Rousseau, Klapp, and Daingerfield. These experiments, in which mercury and stimulating odorous substances were the principal articles employed, had labour, ingenuity, and candour to recommend them to the public, and induced many physiologists to renounce their former opinions on this point.

It long since occurred to me, that coloured substances which are but moderately stimulating, and the colouring part of which is known to be absorbed from the intestinal canal, and to enter the circulation unchanged, ought not to be neglected in the prosecution of an experimental inquiry into this subject; and I resolved, should no one anticipate me, to make some experiments myself, when a convenient opportunity should occur. Accordingly, March 22, 1809, I instituted a course of experiments, with the *Rubia tinctorum*, or Madder.

EXPERIMENT I.

I immersed myself, my head and anterior part of the thorax excepted, in a pretty strong watery infusion of the *rubia tinctorum*, and remained in it two hours and forty-five minutes. The urine discharged immediately after leaving the bath was pale, and considerable in quantity. Three hours afterwards, the urine was again discharged; it was slightly tinged with red. The bladder was not again emptied till the following morning; and, though the time elapsed was ten hours, the urine had no perceptible redness, and in appearance was nearly or quite natural. Treated with a solution of the common sulphat of iron, the highest-coloured portion of urine gave a tinge of a purplish-brown. The other portions, treated in the same way, were not sensibly changed in their colour.

EXPERIMENT II.

March 23, I continued three hours in the madder-bath. On leaving it, the urine was, as before, pale, and considerable in quantity. Five hours after, the urine discharged was strongly tinged with a reddish colour. Three hours from this, it was much paler; and the next morning, or eighteen hours after leaving the bath, the urine discharged was of its natural paleness. The portion discharged five hours after leaving the bath was a little deeper coloured than common Sherry or Sicily wine. Treated with the sulphat of iron, a strong purplish-brown precipitate was produced. With the same test, the urine drawn seven hours after coming out of the bath gave much less of the colour; the succeeding portions gave more.

EXPERIMENT III.

Recollecting an observation of Haller, that 'as heat increases perspiration, so cold increases absorption,' I determined to enter the bath at as low a temperature as I could bear. In an hour and five minutes, a strong chill and some spasms compelled me to retire. The urine immediately discharged was, as in the two first experiments, pale. At the end of three, and of five hours afterwards, the urine had a little more colour, but the difference was small; and I am not certain that the sulphat of iron produced any of the brown colour. The urine, at succeeding intervals, had nothing peculiar in its appearance.

EXPERIMENT IV.

March 25, I continued three hours in the madder-bath. Urine was drawn at the time I left the bath, and at the expiration of five, and of seven, and of fifteen hours afterwards. The first portion was pale, and unusual in quantity. The second portion exhibited a deeper colour than had appeared in either of the preceding experiments, and, with the sulphat, a very strong purple-brown was produced. The third portion, or that taken seven hours after I left the bath, had a feeble tinge of red, and was acted upon in a small degree by the sulphat. The fourth portion was natural.

Blood was drawn from my arm at the end of three, and again at the end of five hours after I left the bath.

The different portions were suffered to stand unagitated until a separation had taken place. The serum was then carefully decanted off. No difference appeared in the two portions; each was opaque, and of a pale-red colour, slightly tinged with yellow. The sulphat added to them produced a very slight change, but I am not positive that the purplish-brown appeared at all.

In all the above experiments, the urinary bladder was emptied immediately before I entered the bath. The urine was uniformly pale, and, tested with the sulphat, exhibited none of the purplish tinge. In the first, second, and fourth experiments, the bath, by the occasional addition of hot water, was kept at a comfortable temperature. I had no thermometer (it is said to be unphilosophical to experiment without a thermometer); but, fortunately, the results of these experiments have shown that very nice attention to temperature was not necessary.

The *pulse* was a little accelerated soon after I entered the bath, and retarded before I left it. In the first, second, and fourth experiments, I felt a small degree of languor, and slight head-ache for two or three hours after bathing. During this time the pulse was increased in frequency, not falling below seventy, and in one instance going as high as eighty-four in a minute.

I invariably took a full meal after each experiment; but, during the four days in which I was engaged, I avoided eating or drinking coloured substances. In the three first experiments I avoided friction; in the fourth, I employed considerable friction upon the lower extremities.

EXPERIMENT V.

In order to ascertain whether the colour of the urine could be imitated, I made a saturated infusion of madder in water. This was introduced *guttatim* into a portion of clear water, until it acquired nearly the same tinge with the urine. I then threw in a few drops of the solution of the sulphat of iron; the purplish-brown was instantly visible.

EXPERIMENT VI.

Into a quantity of pale, recently-drawn urine, I dropt the saturated infusion of madder, until the urine acquired precisely the same hue as the red urine of the fourth experiment. The sulphat of iron, added to the urine thus tinged, and to the urine of the fourth experiment, produced the same purple-brown colour in each. This experiment was repeated in the presence of my friend Mr. French, and he declared that he could discover no difference of colour in the two portions.

EXPERIMENT VII.

Doubtful whether the colour of the serum in the fourth experiment could, with propriety, be referable to the presence of madder, I took blood from my arm. March 27, I found the serum of this blood considerably redder than the former, but it had nothing of the yellow tinge, and was transparent. The sulphat of iron added to it produced no change in the colour.

EXPERIMENT VIII.

To satisfy myself what allowances should be made for the increased action of the blood-vessels induced by the bath, in accounting for the deep colour of the urine, I placed myself, March 30th, in a bath of pure water, at a comfortable temperature. I remained in it three hours. My pulse, on my entering the bath, was about 72 in a minute. At the end of the first hour it beat 67, at the end of the second hour, 62, and at the end of the third hour, 62. Four hours after leaving the bath, my pulse was 80 in a minute; but I had very slight languor and no head-ache. In this, as in former experiments, I ate a full meal, and took a walk soon after coming out of the bath.

Urine was discharged at the time of my going into the bath, at the time of my leaving it, and at the different intervals of 3, 5, 8, and 17 hours afterwards. The urine drawn at the time of leaving the bath was a little paler than either of the other portions, and was much more abundant. The other portions were scarcely distinguishable, by their colour, and in neither of them could the red tinge be at all perceived. Tested with the sulphat, these different portions exhibited no change of colour, or rather they exhibited nothing of the purple, or the brown. A large proportion of the sulphat produces a slight change in the appearance of common urine. I have occasionally seen a semiopaque, whitish appearance, after mixing the sulphat with pale urine.

EXPERIMENT IX.

I accidentally discovered that potash is an excellent test for the presence of madder. A saturated solution, in water, of caustic, or moderately carbonated potash, dropped into a weak infusion of madder, turns it to a bright cranberry-red, without destroying the transparency of the infusion.

This test was applied to the red urine of the second and fourth experiments, portions of which I had fortunately preserved; the same cranberry-hue was instantly visible.

I made a saturated infusion of madder in recently-drawn pale urine. I dropped this saturated infusion into a quantity of pale urine, until it acquired precisely the colour of the red urine of the fourth experiment. The potash added to each, produced the same degree of cranberry-redness. I should have applied this test to the serum of the fourth experiment, but it had commenced a spontaneous decomposition. The serum of the seventh experiment was not changed by the addition of the potash, in any other way than in becoming paler in colour, in proportion to the degree it was diluted.

EXPERIMENT X.

To throw additional light on the query, did the colouring matter of the blood enter the urine, and produce the red appearance exhibited in the 1st, 2nd, and 4th experiments?, I agitated a small bit of crassamentum, with a quantity of pale, recent urine, until it acquired nearly the colour of the urine of the fourth experiment. The urine thus coloured was tested with the solution of potash, but no change followed, except a diminution of colour, in proportion to the quantity of the solution added. The sulphat of iron did not change its appearance.

EXPERIMENT XI.

With a view to compare the appearances of the urine after taking madder internally, with those which followed its external application, I took, March 31, two ounces of a strong infusion of madder. At this time the urine was discharged: it was pale, and was not altered by the addition of the potash. At the end of two hours, the urine was again discharged: it was pale, as before, and was not affected by the potash. At the end of five hours, the urine drawn was faintly tinged with a reddish hue. The solution of the potash sensibly reddened it. Succeeding portions were pale.

EXPERIMENT XII.

April 1, half past 3, P. M., I took six ounces of a strong infusion of madder. The urine discharged at this time was pale, nor was it in the least altered by the addition of the potash. Two hours and a half after I took the madder, the urine was considerably tinged, and, on the addition of the potash, it assumed the bright cranberry hue. Five hours from the time the madder was taken, the urine had a deeper colour than the last mentioned portion, and, with the potash, it gave a proportionably deeper-coloured result. Treated with the sulphat of iron, it assumed the purplish-brown tinge. The urine discharged the following morning was of a faint red, and was perceptibly changed by the potash. The pulse in the two last experiments was somewhat accelerated, owing either to the madder or to exercise—more probably to exercise. I had no head-ache.

EXPERIMENT XIII.

I made an infusion of two pounds and a half of the best madder in about thirty gallons of water. April 4, at half past 2 o'clock, P. M., I entered this infusion, and remained in it until half past 6 o'clock, P. M. The temperature of the atmosphere was 68°, that of the bath fluctuating from 85° to 87°. In consequence of considerable previous exercise, my pulse stood at 100 beats in a minute, at the time of entering the bath. In half an hour it was 87 in a minute; in an hour and a half it was 79; in two and a half it was at 76; in three and a half it was at 72; and in four hours it was at 68 in a minute.

Urine drawn immediately before entering the bath was pale, and yielded no colour when treated with the potash. Urine drawn three hours after entering the bath was pale. Urine discharged one hour after leaving the bath had considerable colour; and, with the potash, yielded the bright-red. In three hours from the time of leaving the bath, I again examined the urine: it had more colour than the last portion, and rendered a deeper red with the alkali. The urine discharged the following morning had a faint tinge of red, and was visibly affected by the alkali.

Blood was drawn from my arm two hours before I went into the bath, and again one hour and a half after I came out of it. The two portions of serum had considerable colour, though the last drawn portion was deeper than the first: neither of them were sensibly altered by the addition of the tests.

EXPERIMENT XIV.

My friend Mr. Clark politely offered to assist me in making an experiment. April 7, he entered the madder-bath, fifteen minutes before 1 o'clock, P. M., and left it fifteen minutes after 4 o'clock, P. M. The temperature of the atmosphere was 47°, that of the bath 65°, during the first 45 minutes: the remainder of the time it fluctuated from 85° to 95°. His pulse, on entering the bath, was 56 in a minute. An hour after, it was 83. At the end of two and a half hours, 72; and at the time of his leaving the bath, it was at 67.

The urine, on his entering the bath, was pale, and suffered no change by the addition of the alkali. On his leaving the bath, the urine was again discharged; and, though it was not perceptibly tinged, instantly turned of a bright-red when the potash was added. Five hours after the experiment, the urine gave a deep-red with the test; and the portion discharged the following morning was sensibly reddened by the alkali.

Reflecting on the results of the foregoing experiments, I càn account for them in no other way than on the supposition that the colouring matter of madder entered the system in consequence of its external application; and, until a more satisfactory way of accounting for them be known, the doctrine of Cutaneous Absorption must be considered as placed beyond the reach of controversy.

In detailing my experiments, I have maintained as rigid an adherence to truth, as my knowledge of language would allow me. Every one knows how difficult it is, by means of words, to give precise ideas of colours. I have used the expressions *purplish-brown* and *cranberry-red.* Different language would probably have been adopted by a different experimenter; and it might, perhaps, more happily have expressed the ideas intended. But words cannot alter an impression made on the organ of vision.

In attending to the results of my experiments, I have not trusted merely to my own eyes. Many of my friends have examined the different portions of urine drawn in different experiments; they have witnessed the effects of the tests on these portions; they have compared these effects with those produced by the same tests on different fluids, as water, urine, and diluted serum *artificially* coloured with madder; and they have unanimously declared the results to be satisfactory and decisive. I think no person of common candour could have witnessed these results without acquiescing in their validity; indeed scepticism itself must have turned believer, in view of proof so plain. I speak with great confidence on this subject, since I consider it impossible that so many of my scrutinizing friends, as well as myself, should have been deceived.

From the effect that the sulphat of iron produces on the red urine, I think it probable that the astringent principle of the madder enters into the circulation, passes the kidneys unaltered, and that the gallic acid it contains seizes upon the oxy-sulphat of iron contained in the common sulphat, and produces the brown colour. The reason, doubtless, why the result is not darker coloured, is, that the gallat of iron is very much diluted by the fluid which contains it. The purple hue is probably owing to red particles of madder floating amidst the gallat of iron. I offer no solution of the change produced on an infusion of madder, by means of the vegetable alkali.

The red particles of the blood, inevitably retained by the serum, and the extremely diluted state of the madder it contained, will very well account for the want of effect produced on the different portions of serum to which the test was applied. This is certain, that I added several drops of a strong infusion of madder, to a very small quantity of serum, and could not detect it by my tests. One-sixth of the quantity of madder would have been detected by the tests, in the same quantity of water or urine.

Comparing the quantity of coloured urine, together with the degree of colour exhibited in the two last experiments, I should judge that not less than twenty or thirty ounces of fluid was absorbed by the skin in the last experiment. But it would be very difficult to come at any thing like precision on this point.

Will it, after all, be said, that the lungs might absorb the colouring part of the madder? I think not. Every *woollen-dyer* knows too much to raise an objection like this. The following experiment, however, is in point. I distilled a pretty strong infusion of madder at the boiling temperature. The fluid caught in the receiver was colourless as water, and did not receive any colour by the addition of the alkali. Nor did the boiling heat in the least injure the colour of the infusion in the retort. A few drops of it in water or urine could be detected by the potash in the same manner as before.

Although the doctrine of cutaneous absorption may now be considered as resting on an immoveable basis, yet it remains for future experiments to show what are the different substances which are absorbed, and with what facility they may be made to enter the skin. It would, however, be an extremely limited view of the subject, should we suppose that Nature prepared the cutaneous absorbents for the purpose merely of taking in an infusion of madder. The rational conclusion is, that they have a higher destination, and that they occasionally, if not constantly, take an active and important part among the animal functions.

X. *Statement of Deaths, with the Diseases and Ages, in the City and Liberties of Philadelphia, from the* 1*st of January*, 1808, *to the* 1*st of January*, 1809.

DISEASES.	Under 2 years.	From 2 to 5.	From 5 to 10.	From 10 to 20.	From 20 to 30.	From 30 to 40.	From 40 to 50.	From 50 to 60.	From 60 to 70.	From 70 to 80.	From 80 to 90.	From 90 to 100.	From 100 to 110.	Ages unknown.	Total.
Abortion	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Abscess	0	2	3	0	0	0	0	1	1	0	0	0	0	1	8
Angina pectoris	1	0	0	0	0	0	0	0	0	1	0	0	0	0	2
Aneurism	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Anthrax	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Apoplexy	0	0	0	1	5	4	6	3	9	3	1	0	0	2	34
Asthma	0	0	0	1	0	1	1	0	0	1	0	0	0	0	4
Atrophy or marasmus	20	1	1	0	0	0	3	1	2	0	1	0	0	0	29
Burns	4	4	2	0	0	1	1	0	0	0	0	1	0	2	15
Cancer	0	0	0	0	0	1	5	1	1	1	0	0	0	0	9
Casualties	1	0	0	0	1	2	5	1	1	0	0	0	0	1	12
Catarrh	19	0	0	0	0	0	2	0	0	1	0	0	0	1	23
Cachexy	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Caries of the spine	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Chlorosis	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Constipation	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Cholera morbus	192	20	4	1	0	1	1	1	0	0	0	0	0	10	230
Cholic	3	0	0	1	3	1	2	1	1	3	1	0	0	1	17
Consumption of lungs	12	10	10	21	67	73	41	33	12	1	1	0	0	20	301
Convulsions	100	12	6	0	8	6	4	1	2	0	0	0	0	6	145
Contusion	0	0	0	0	0	3	0	0	0	0	0	0	0	1	4
Debility	10	1	0	1	1	0	1	0	0	0	1	0	0	0	15
Decay	19	4	2	4	4	6	9	9	6	5	2	1	0	1	72
Diabetes	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
Diarrhœa	20	10	1	4	2	6	8	8	9	4	2	0	0	0	74
Dropsy	1	3	1	2	7	16	11	9	8	5	2	0	0	2	67
Dropsy of the brain	31	8	3	2	3	4	0	1	0	0	0	0	0	0	52
Dropsy in the chest	0	0	0	0	2	2	4	3	2	2	1	0	0	2	18
Drowned	0	0	1	5	5	3	6	1	2	0	0	0	0	5	28
Disease of the heart	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
——— hip joint	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Drunkenness	0	0	0	0	0	3	0	0	1	0	0	0	0	1	5
Dysentery	21	8	2	2	0	1	1	0	2	1	0	0	0	2	40
Dyspepsia	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
Dyspnœa	2	0	0	0	0	0	0	1	0	0	0	0	0	0	3
Eruptions	2	0	0	0	0	0	0	0	0	0	1	0	0	0	3
Epilepsy	1	1	0	2	1	0	3	4	0	0	0	0	0	0	12
Erysipelas	3	0	0	0	0	1	0	0	0	0	0	0	0	0	4
Executed	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
Fever, type not ment.	4	0	2	3	2	3	4	0	1	2	0	0	0	2	22
——— bil. remit. & inter.	5	0	1	4	13	7	7	2	3	1	0	0	0	0	45
——— typh. nerv. & putr.	0	0	3	7	13	7	3	1	1	0	0	0	0	0	35

CONTINUED.

DISEASES.	Under 2 years.	From 2 to 5.	From 5 to 10.	From 10 to 20.	From 20 to 30.	From 30 to 40.	From 40 to 50.	From 50 to 60.	From 60 to 70.	From 70 to 80.	From 80 to 90.	From 90 to 100.	From 100 to 110.	Ages unknown.	Total.
Fever, inflam. phrenitic, and cephalic	1	0	2	2	0	2	3	0	0	0	0	0	0	0	10
Fever, scarlet	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
——— hectic	2	0	0	0	1	0	1	0	0	0	0	0	0	0	4
——— puerperal	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2
Fracture	0	0	0	1	0	2	0	0	0	0	0	0	0	0	3
Gout	0	0	0	0	0	1	1	1	0	1	0	0	0	0	4
Gravel	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Hives	38	10	3	0	0	0	0	0	0	0	0	0	0	2	53
Hæmorrhage, hæmorrhoids, & hæmoptysis	0	1	0	0	4	1	2	1	1	0	0	0	0	1	11
Hooping cough	10	1	0	0	0	0	0	0	0	0	0	0	0	0	11
Inflam. of the brain	5	2	2	0	3	2	3	2	8	0	0	0	0	0	22
——— lungs	24	5	4	0	10	4	5	3	5	4	0	0	0	2	66
——— liver	4	1	2	0	1	7	1	4	2	1	0	0	0	2	25
——— stom. & bow.	13	0	0	3	1	3	5	1	3	2	0	0	0	2	33
——— peritoneum	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Insanity	0	0	0	0	7	8	2	3	2	1	0	0	0	2	25
Jaundice	2	0	0	0	0	1	3	1	1	1	0	0	0	0	9
Lethargy	0	0	0	0	0	0	0	1	1	1	0	0	0	0	3
Locked jaw	1	1	3	0	0	0	3	0	0	0	0	0	0	0	8
Measles	50	13	8	0	0	0	0	0	0	0	0	0	0	2	73
Mortifica. and gangrene	5	3	1	0	0	0	4	3	1	1	0	0	0	2	20
Old age	0	0	0	0	0	0	0	0	0	16	15	5	2	0	38
Overlaid	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Palsy	0	0	0	1	0	0	4	6	2	1	2	0	0	1	17
Parturition	0	0	0	0	3	0	1	0	0	0	0	0	0	0	4
Pleurisy	4	0	1	4	6	6	6	3	3	1	0	0	0	1	35
Quinsy	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
Rickets	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Rheumatism	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3
Scrophula	0	1	0	0	3	0	0	0	1	0	0	0	0	1	6
SMALL-POX, natur.	36	32	26	15	12	10	2	1	0	0	0	0	0	7	141
——— inoculated	1	2	0	1	0	0	0	0	0	0	0	0	0	0	4
Sore throat	4	1	0	1	0	0	1	0	1	0	0	0	0	0	8
Still-born	126	0	0	0	0	0	0	0	0	0	0	0	0	0	126
Suicide	0	0	0	0	0	1	0	1	0	0	0	0	0	2	4
Sudden death	4	0	4	0	6	15	6	7	4	0	0	0	0	4	46
Syphilis	2	1	0	1	9	0	2	1	0	0	0	0	0	0	16
Teething	10	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Thrush	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Tumors	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
Ulcers	3	0	0	0	0	0	0	0	0	0	0	0	0	1	5
Visceral obstructions	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Worms	11	5	2	0	0	0	0	0	0	0	0	0	0	2	20
Wounds	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Diseases unknown	31	2	1	1	1	2	0	1	1	0	0	0	0	3	43
Total	867	167	98	95	212	219	186	128	98	61	30	7	2	101	2271

DEATHS IN EACH MONTH

OF THE ABOVE PERIOD.

	Adults.	*Children.*	*Total.*
January - - -	91	45	136
February - - -	73	50	123
March - - -	91	63	154
April - - -	96	73	169
May - - -	81	98	179
June - - -	95	132	227
July - - -	111	263	374
August - - -	109	188	297
September - - -	88	97	185
October - - -	71	83	154
November - - -	81	71	152
December - - -	59	62	121
Total - - -	1046	1225	2271

By order of the Board of Health,

WILLIAM NESBITT, *Clerk.*

Health Office, Jan. 21, 1809.

THIRD SUPPLEMENT

TO THE

PHILADELPHIA

MEDICAL AND PHYSICAL JOURNAL.

SECTION SECOND.

OBITUARY.

WILLIAM SHIPPEN, M. D., Professor of Anatomy and Midwifery in the University of Pennsylvania, died on the 11th day of July last, at the advanced age of seventy-three. He was one of the principal founders of the MEDICAL SCHOOL of Philadelphia; and, by his popular manner of teaching the sciences which he professed, he contributed, in an eminent degree, to the growth and reputation of the most extensive and flourishing Medical Seminary in the United-States. It is the intention of the Editor to give, in a future number of the *Journal*, a " Sketch of the Character" of his Preceptor and Friend.

◆

Died in Philadelphia, on the 11th day of January last, in the 47th year of his age, Matthias Barton, Esq., of Lancaster, in Pennsylvania. He was the son of the Reverend Mr. Thomas Barton, for many years a member of the Protestant Episcopal Church in Lancaster[*], and an elder Brother of the Editor of this *Journal*.

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[*] Mr. Barton, the Father, died in New-York, in the year 1780. He was one of the principal founders of the " Juliana Library

Although Matthias Barton was but little known to the world as a man of literature or science; and may, therefore, seem to have but a slender claim to commemoration in a work such as the present, yet he was the means of considerably enlarging the stock of natural knowledge in the United-States; and as a man of exact observation he was, perhaps, inferior to few of his countrymen.

In the course of his annual tours through many parts of Pennsylvania, and the adjacent States, he indulged a strong, almost innate, desire to inquire into the natural history of his country: and the mass of *original* matter which he thus collected, and which he always communicated to the Brother, who now endeavours, however feebly or imperfectly, to commemorate his worth, was very considerable. In particular, the facts which he collected, often from his own immediate observation, relative to the manners and habits of the animals, especially the viviparous Quadrupeds, the Birds, and the Fishes, are some of the most curious and important that the Editor has hitherto met with. He flatters himself, that they will be considered as an important addition to the stock of zoological history: they will, certainly, greatly inhance

Company" at Lancaster; and cultivated, with considerable success, some of the branches of Natural History, at a time when these studies were almost entirely neglected in Pennsylvania. He formed a considerable collection of the Mineral Productions of Pennsylvania. See a "Discourse on some of the principal Desiderata in Natural History," &c., &c., page 86.

THIRD SUPPLEMENT

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PHILADELPHIA

MEDICAL AND PHYSICAL

JOURNAL.

COLLECTED AND ARRANGED

BY BENJAMIN SMITH BARTON, M. D.,

PROFESSOR OF MATERIA MEDICA, NATURAL HISTORY, AND BOTANY, IN THE UNIVERSITY OF PENNSYLVANIA.

May, 1809.

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1809.

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Erratum.—Page 290, last line, for *more* read *none*.